

Comprehensive Template Design



Engineering\CADD Systems Office

Learning Objectives

◆ UI, Points, Components

- ✓ The Basics – Point Properties, Component Properties, and Constraints
- ✓ Creating Simple (Static) Templates -
- ✓ Setting Preferences
- ✓ Dynamic Settings \ Apply Affixes
- ✓ Working with Components – Deleting, Merging Points, Updating Constraints
- ✓ End Conditions

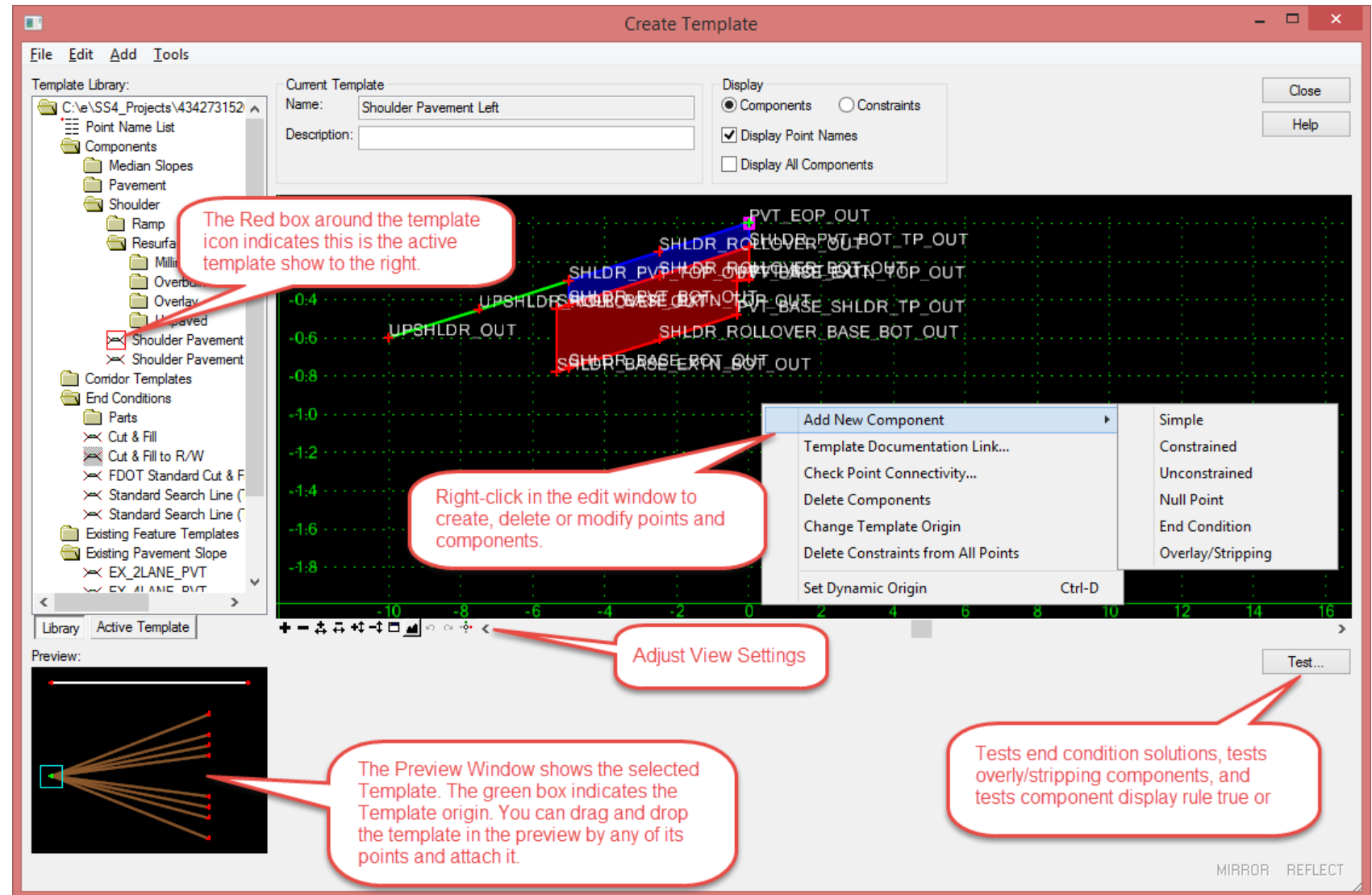
◆ Creating Variable Templates

- ✓ Hierarchy of Constraints
- ✓ Horizontal Feature Constraints
- ✓ End Conditions as Trigger Lines
- ✓ Parent \ Child Relationships
- ✓ Active Template View
- ✓ Switches
- ✓ Display Rules
- ✓ Parametric Constraints
- ✓ Trigger Lines
- ✓ Organizing \ Stacking Conditions and Parametric Constraints
- ✓ Top 10 Best Practices



Create Template Dialog

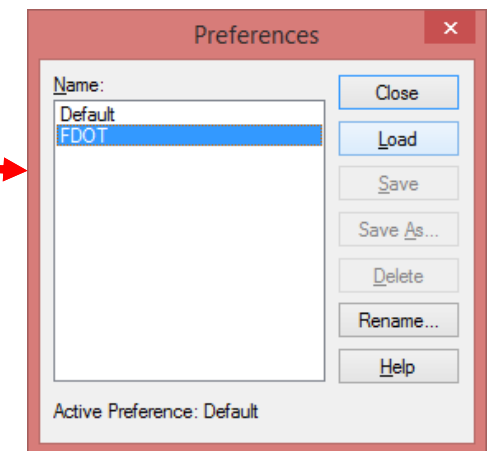
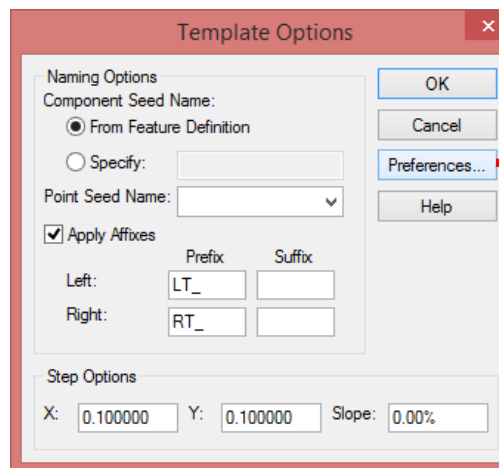
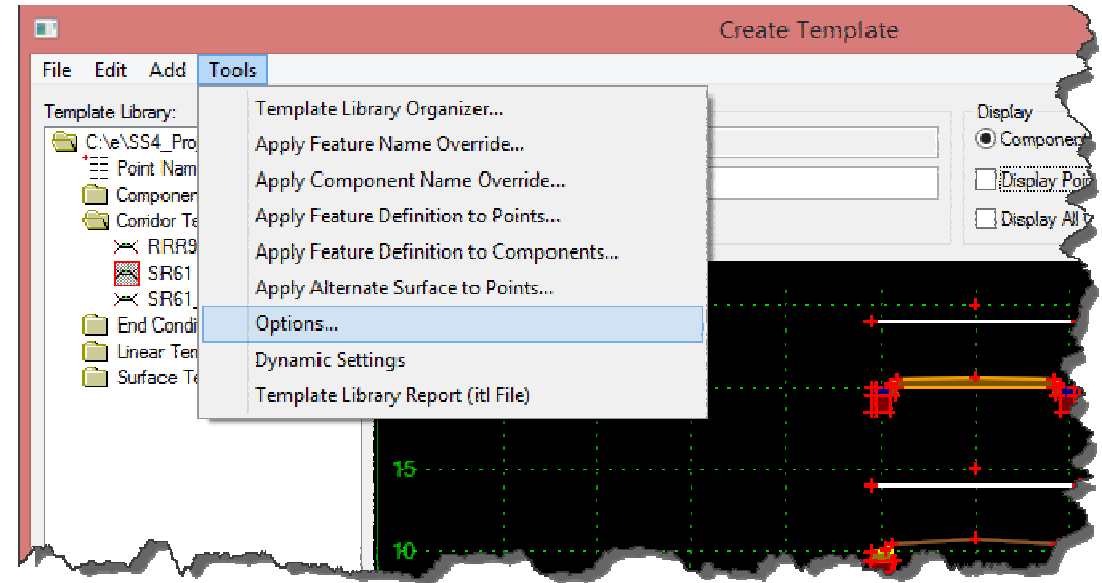
- ◆ User Definable Folders
- ◆ Create Templates, Components and End Conditions
- ◆ Right-click Functions
- ◆ Copy and Paste, and Drag and Drop
- ◆ Red-colored Box Indicates Current Template
- ◆ Drag and Drop Components to Current Template Window



Setting Preferences

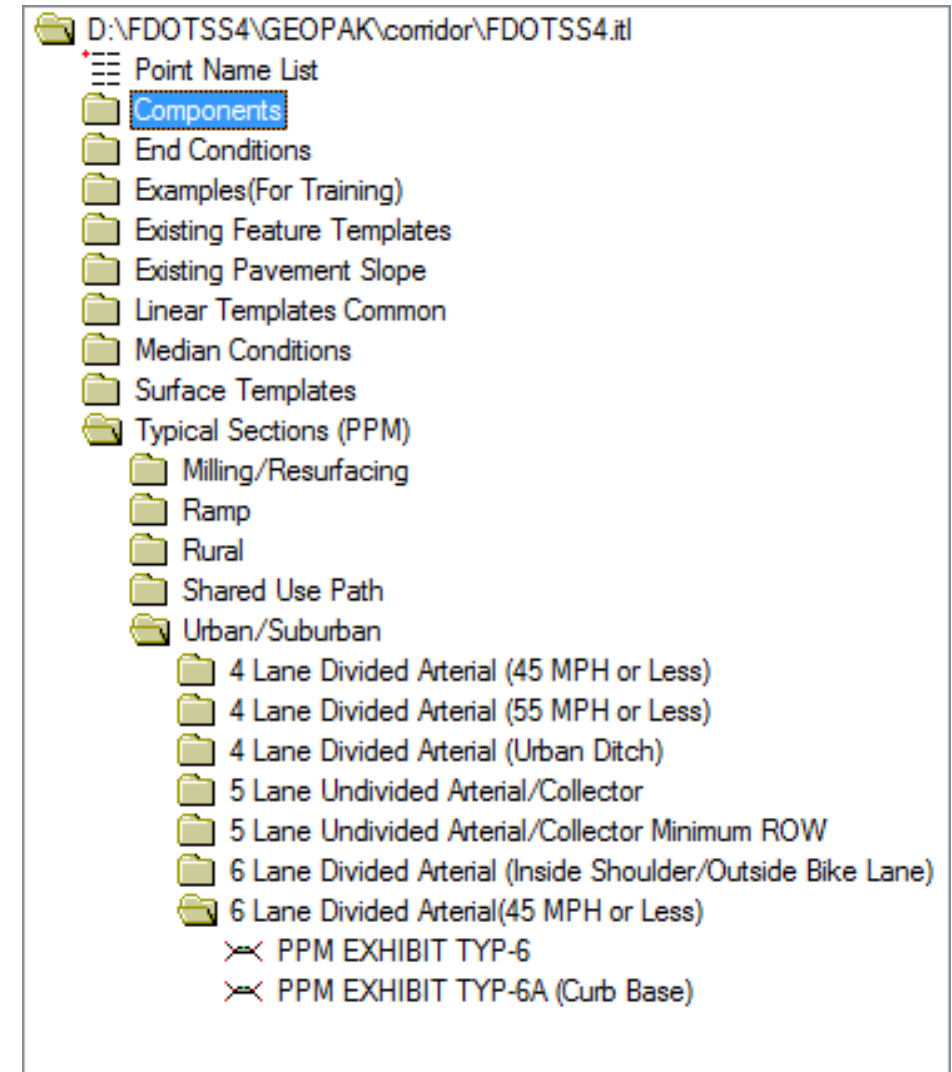
FDOT has defined a collection preferences that should be applied before creating templates.

1. From the Create Template dialog select Tools > Options.
2. On the Template Options dialog click the Preferences button.
3. On the Preferences dialog select FDOT and click Load (or double-click FDOT)



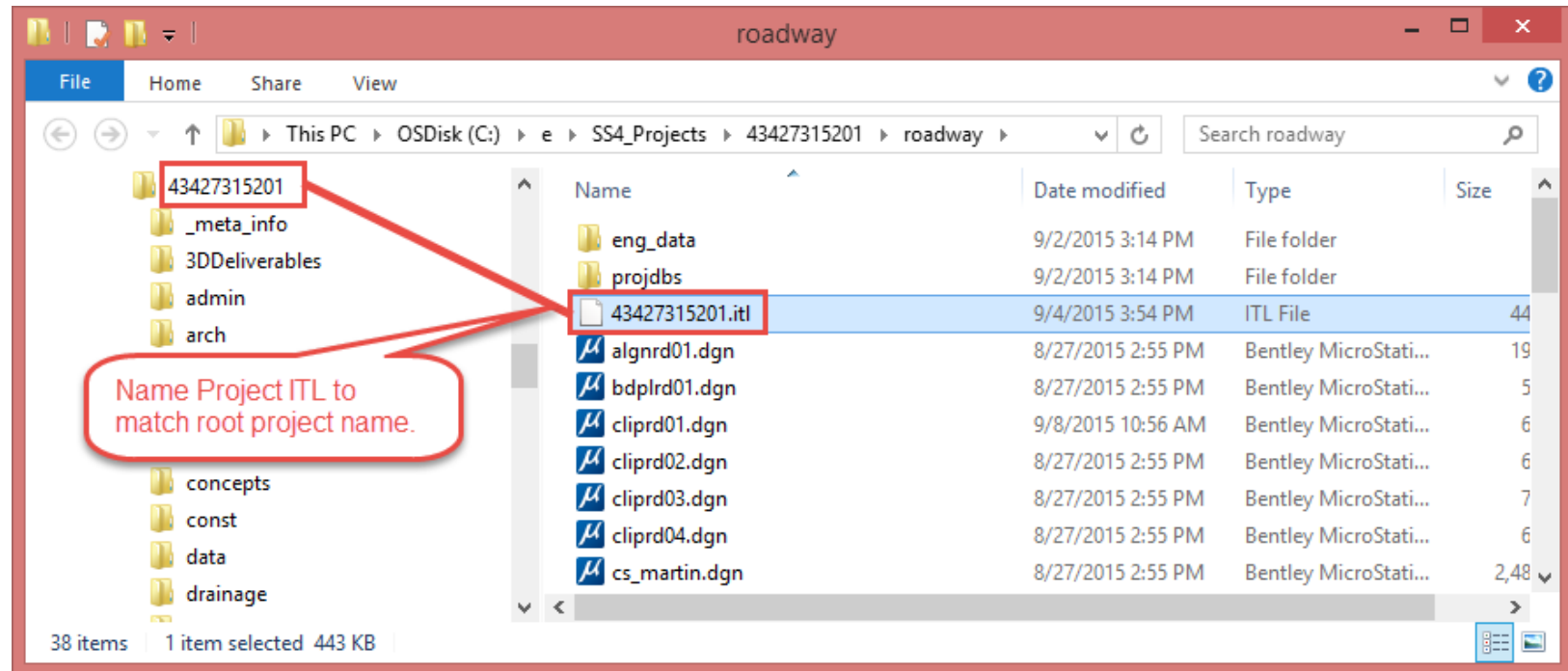
Template Library

- ◆ FDOTSS4.ITL is located in the \\FDOTSS4\\GEOPAK\\Corridor directory.
- ◆ It contains a collection of components and templates that were developed from the FDOT Design Standards and PPM.
- ◆ These templates can be copied into a project specific ITL and customized to meet the needs and unique conditions of each project.



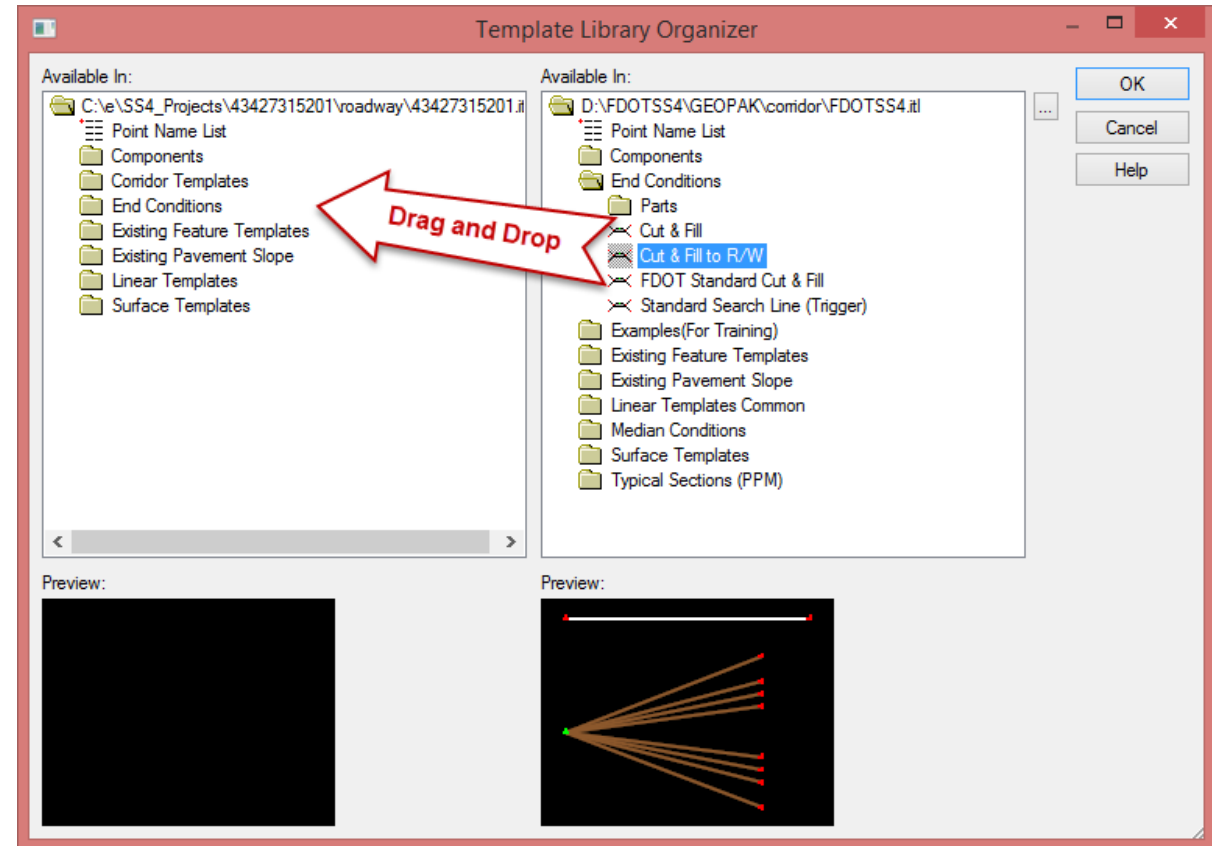
Project ITL

- ◆ Create a Project ITL file to store customized templates.
 - ✓ A blank ITL containing only a folder structure is available in the \\FDOTSS4\\GEOPAK\\corridor\\ directory on the server.
 - ✓ Set name to <ProjectNumber>.ITL for easy access.



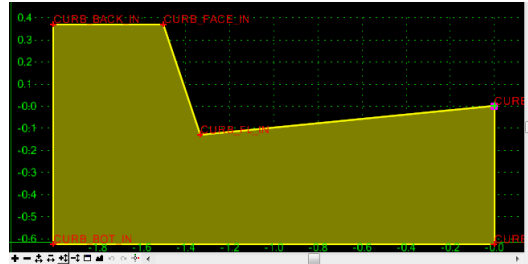
Template Library Organizer

- ◆ After creating and opening the project specific template library you can import Templates and Components using the Template Library Organizer
- ◆ On the Create Template dialog select “Tools > Template Library Organizer”

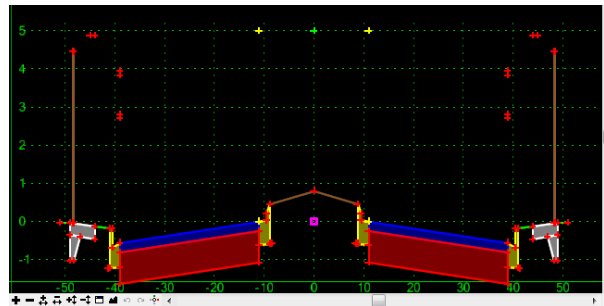


The Basics

- ◆ A Component is a set of points that define an open or closed shape.



- ◆ A Template is a collection of points and components.



- ◆ Templates are stored in a template library (*.itl).

Point Properties

Defines the Feature Definition (symbology) that will be applied.

Allows to specify the name of an alternate surface

Specifies the parent point from which the constraint is based.

Specifies, when selected, a Feature to search for. If an element is found in the search range with that feature the "Constraint Value" will be overridden with the location of the element found.

Specifies the maximum distance to search, from the point's current location, for an element with a Feature matching the Horizontal Feature Constraint.

Point Name

If the check box is selected, this will be the name of the feature (3D Line) that will be created in the model.

A list of components the point is included in.

Specifies a constraint type.

Specifies a second constraint value.

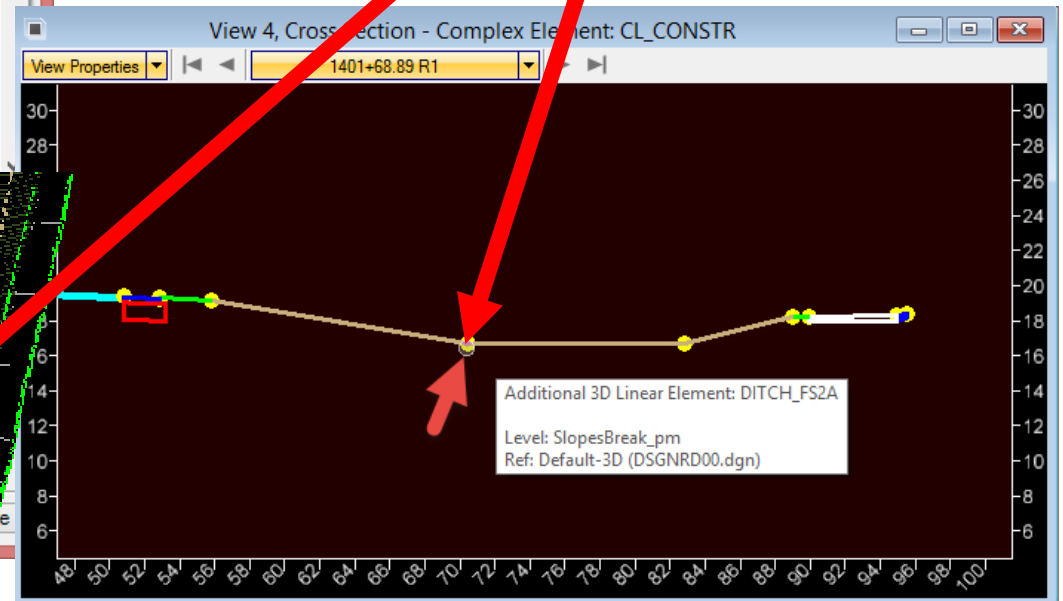
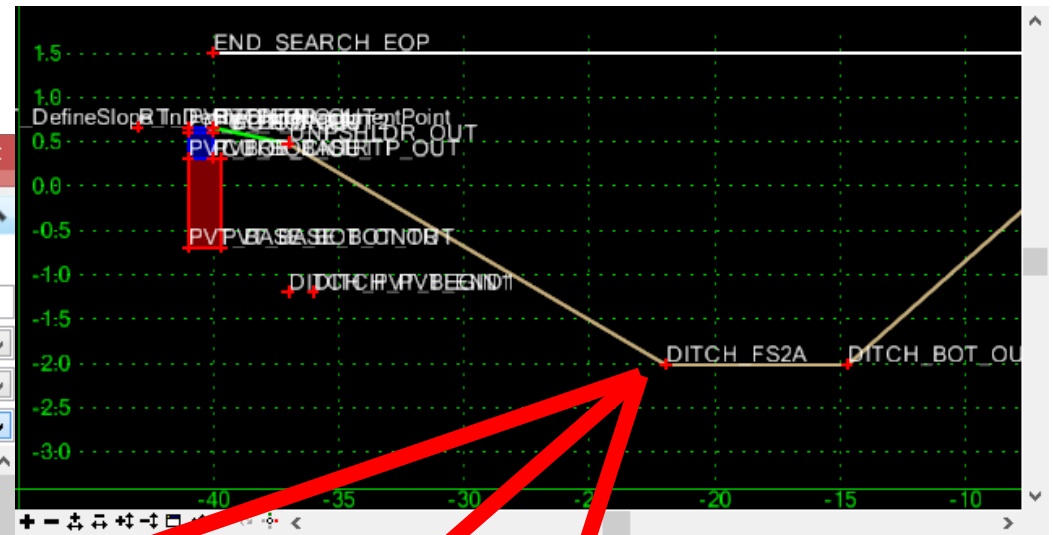
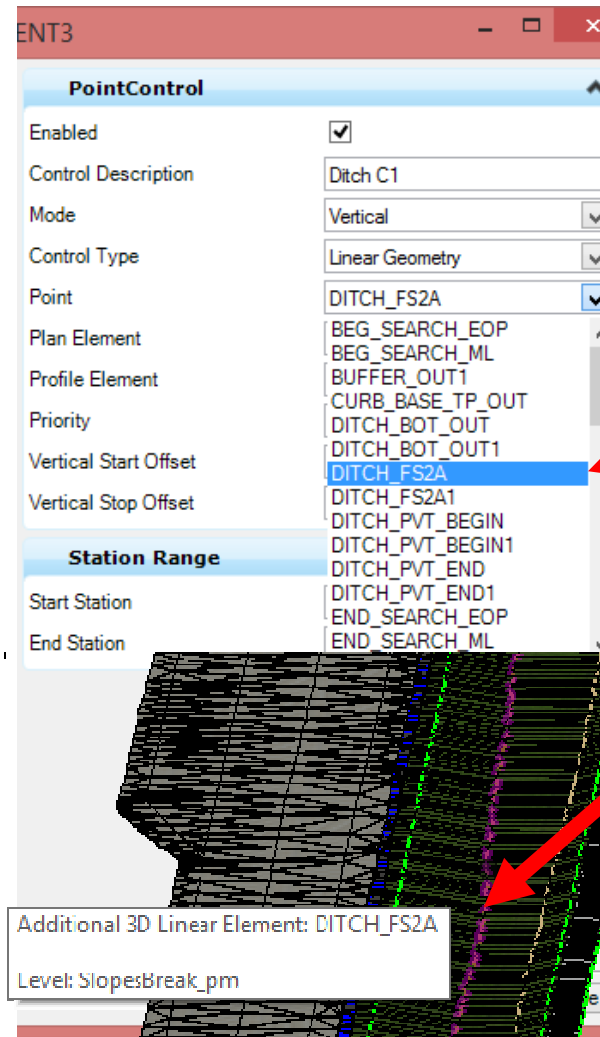
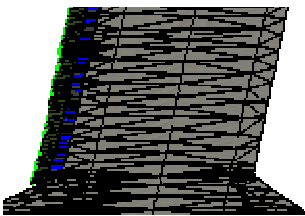
Displays an optional label for the constraint. The Label's value is a variable name that can be used to override a constraint's value using Parametric Constraints after the template has been assigned to a corridor.

The screenshot shows the 'Point Properties' dialog box with the following fields and callouts:

- Name:** PVT_EOP_OUT (Callout: Point Name)
- ☐ Use Feature Name Override: PVT_EOP_OUT (Callout: If the check box is selected, this will be the name of the feature (3D Line) that will be created in the model.)
- Feature Definition:** PavementAsphalt_pm (Callout: Defines the Feature Definition (symbology) that will be applied.)
- ☐ Superelevation Flag
- Alternate Surface:** (Empty dropdown) (Callout: Allows to specify the name of an alternate surface)
- Member of:** Pvt (Callout: A list of components the point is included in.)
- Constraints:**
 - Constraint 1:**
 - Type:** Horizontal (Callout: Specifies a constraint type.)
 - Parent 1:** PVT_CROWN (Callout: Specifies the parent point from which the constraint is based.)
 - Value:** -12.000000
 - Label:** EOP_WidthOutLt (Callout: Displays an optional label for the constraint. The Label's value is a variable name that can be used to override a constraint's value using Parametric Constraints after the template has been assigned to a corridor.)
 - ☒ Horizontal Feature Constraint: PavementAsphalt(EOPA) (Callout: Specifies, when selected, a Feature to search for. If an element is found in the search range with that feature the "Constraint Value" will be overridden with the location of the element found.)
 - Range:** -50.000000 (Callout: Specifies the maximum distance to search, from the point's current location, for an element with a Feature matching the Horizontal Feature Constraint.)
 - Constraint 2:**
 - Type:** Slope (Callout: Specifies a constraint type.)
 - Parent 1:** PVT_CROWN
 - Value:** 2.00% (Callout: Specifies a second constraint value.)
 - Label:** EOP_SlopeOutLt

Point Naming Is Important

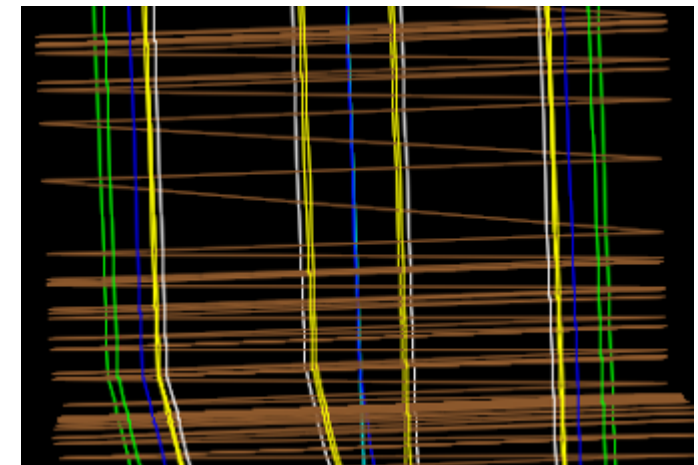
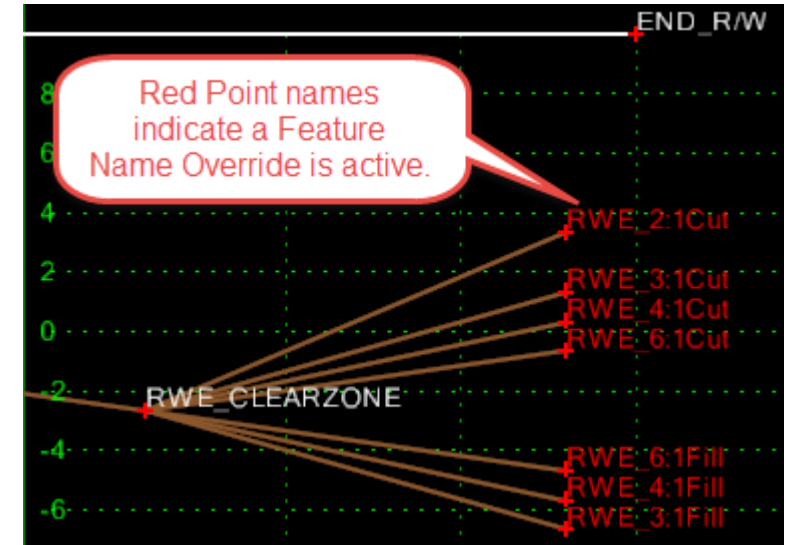
- ◆ Template Transition
- ◆ Point Control
- ◆ Superelevation
- ◆ Surface Creation
- ◆ Cross Section Annotation
- ◆ Machine Control



Feature Name Overrides

Feature Name Overrides provide a way around the requirement of unique point names in a template.

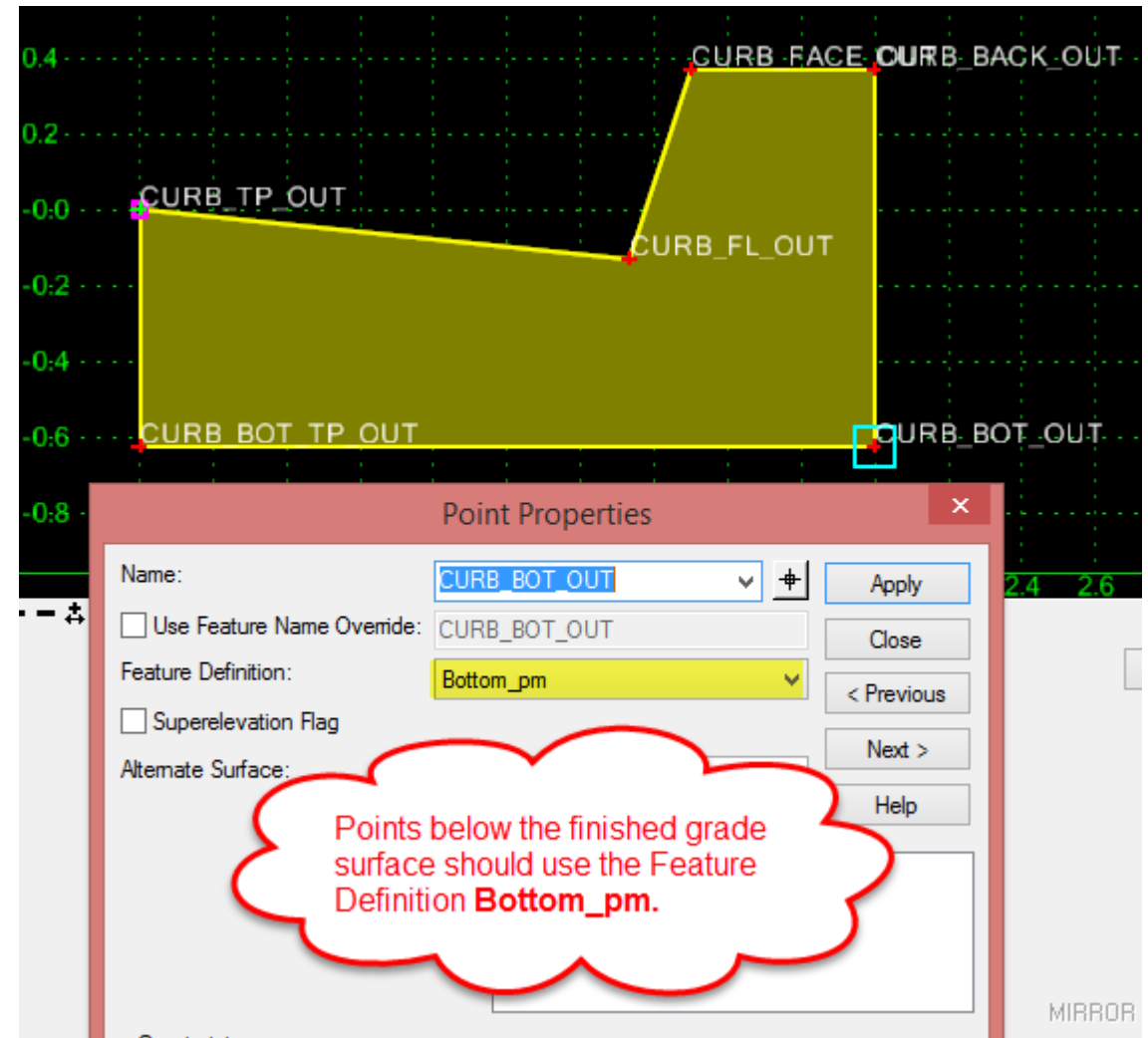
- ◆ Acts as alias when many points represent a single “Feature” (3d linear element)
 - ✓ Commonly used in End Conditions
 - ✓ Useful in variable templates
- ◆ Can cause problems if not used correctly
 - ✓ Zig zag lines indicate a problem
 - ✓ Use “Apply Affixes” to avoid using same name on both sides of the road.



Point Feature Definitions

Feature Definitions define the symbology of the point and how it should be displayed in the various views.

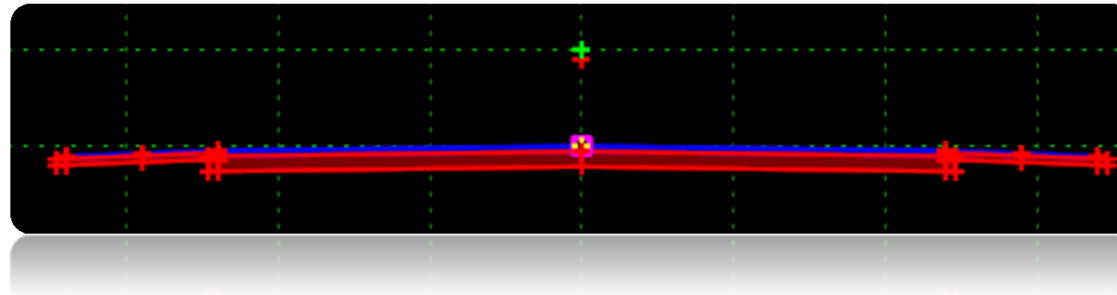
- ◆ Points in a template should always have a _pm Feature Definition.
- ◆ _pm indicates that the element is shown in a Proposed Model view.
- ◆ Bottom_pm should be used for points below the finished grade so they can be easily turned off when producing 3D Deliverables or creating a finished grade surface.



Constraints on Points

Point constraints are used to manage the behavior of points in a template.

- A point can have, at most, 2 constraints on it. It is then “fully constrained”.
- A point with only one constraint is “partially constrained”
- A point with no constraints is “unconstrained” and the point is shown as a green plus sign
- ◆ A rule of thumb is to have only one green point per template and all other points are red.



Point Constraints

- ◆ Point Constraints provide structure to the points making up each component.
- ◆ A Constraints basically defines where a point is located, relative to another “Parent” point.
- ◆ Constraints can have different parents.

The screenshot shows the 'Point Properties' dialog box. It has a title bar with a close button (X). The main area contains several fields and buttons:

- Name:** A dropdown menu showing 'RT_PVT_OLAY_OUT' with a plus icon to its right. An 'Apply' button is to the right of this field.
- ☐ **Use Feature Name Override:** A checkbox followed by a text field containing 'RT_PVT_OLAY_OUT'. A 'Close' button is to the right of this field.
- Feature Definition:** A dropdown menu showing 'PavementMilling_pm'.
- ☐ **Superelevation Flag:** A checkbox.
- Alternate Surface:** A dropdown menu.
- Member of:** A list box containing 'RT_PvtOverlay_02' and 'RT_PvtOverlay_03'.
- Buttons:** '< Previous', 'Next >', and 'Help' buttons are on the right side.
- Constraints Section:**
 - Constraint 1:**
 - Type:** A dropdown menu showing 'Horizontal'.
 - Parent 1:** A dropdown menu showing 'RT_PVT_OLAY_OUT1' with a plus icon to its right.
 - Value:** A text field containing '-12.0000' followed by an equals sign (=).
 - Label:** A dropdown menu.
 - ☐ **Horizontal Feature Constraint:** A checkbox.
 - Range:** A text field containing '0.0000'.
 - Constraint 2:**
 - Type:** A dropdown menu showing 'Slope' with a plus icon to its right. A context menu is open, listing options: 'None', 'Horizontal', 'Vertical', 'Slope' (highlighted), 'Vector-Offset', 'Project To Surface', 'Project To Design', 'Horizontal Maximum', 'Horizontal Minimum', 'Vertical Maximum', and 'Vertical Minimum'.
 - Value:** A text field containing an equals sign (=).

Constraint Types

There are a variety of constraint types that can be applied to a point's properties. By applying two of these constraints to a point structure defining the points relationship to others is established.

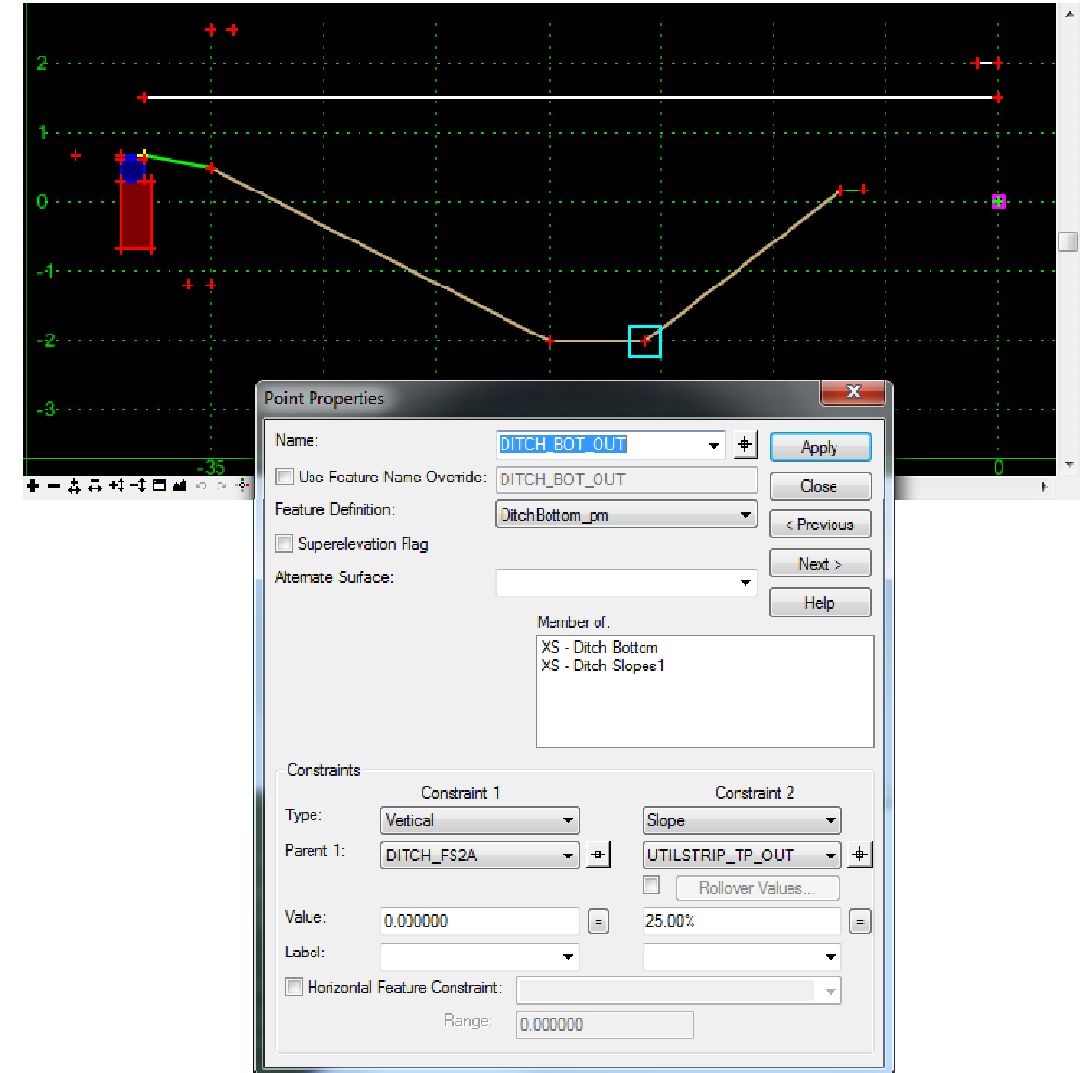
- ◆ Horizontal
- ◆ Vertical
- ◆ Slope
- ◆ Vector Offset
- ◆ Project to Surface
- ◆ Project to Design
- ◆ Angle Distance
- ◆ Vertical Maximum
- ◆ Vertical Minimum
- ◆ Horizontal Maximum
- ◆ Horizontal Minimum



Point Constraints Example

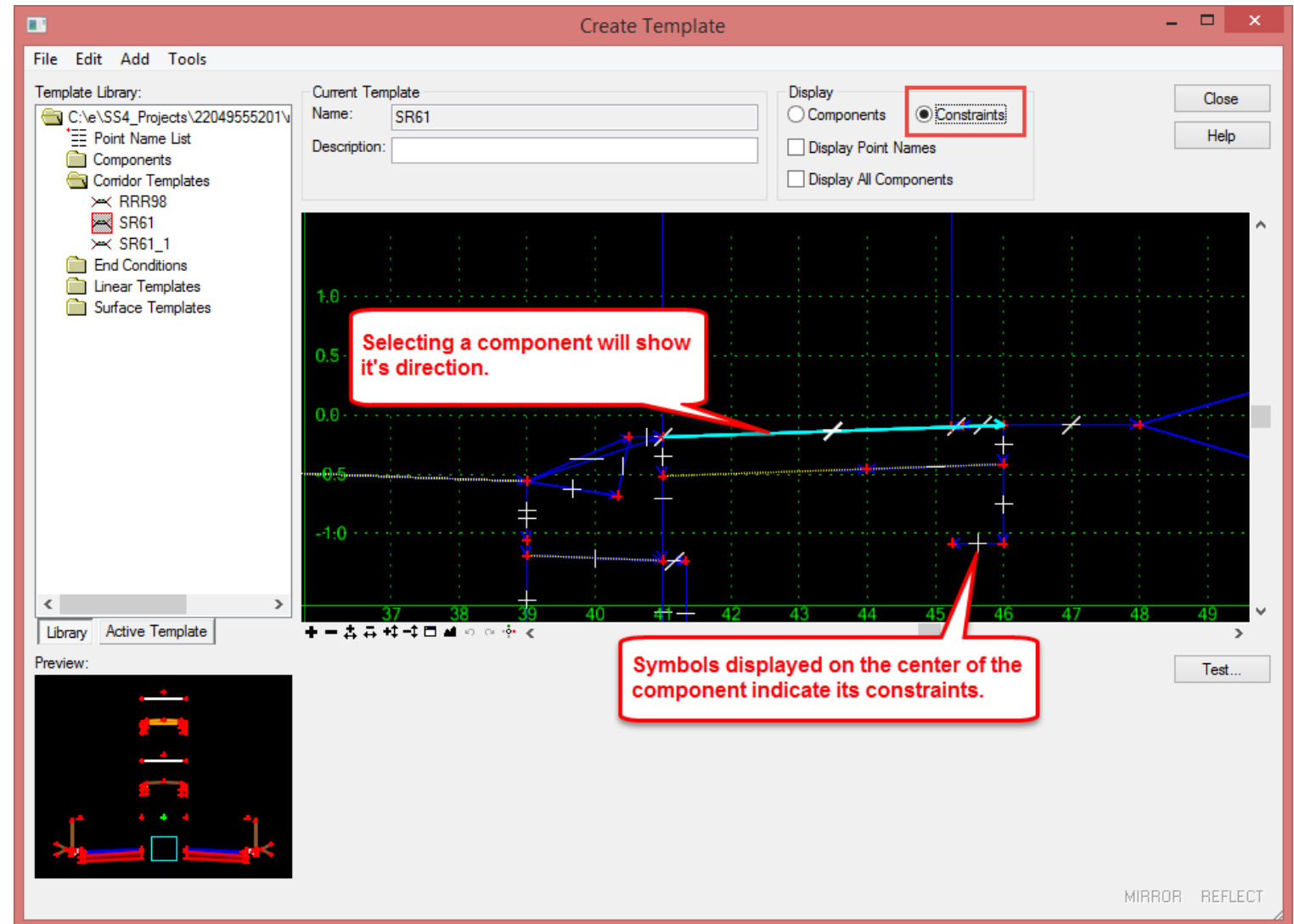
Each project has its own requirements. Constraints give you the flexibility to adjust a template to meet the requirements. Ditches provide a good example of this.

- ◆ Hold ditch width
- ◆ Hold ditch depth
- ◆ Variable ditch width hold slopes



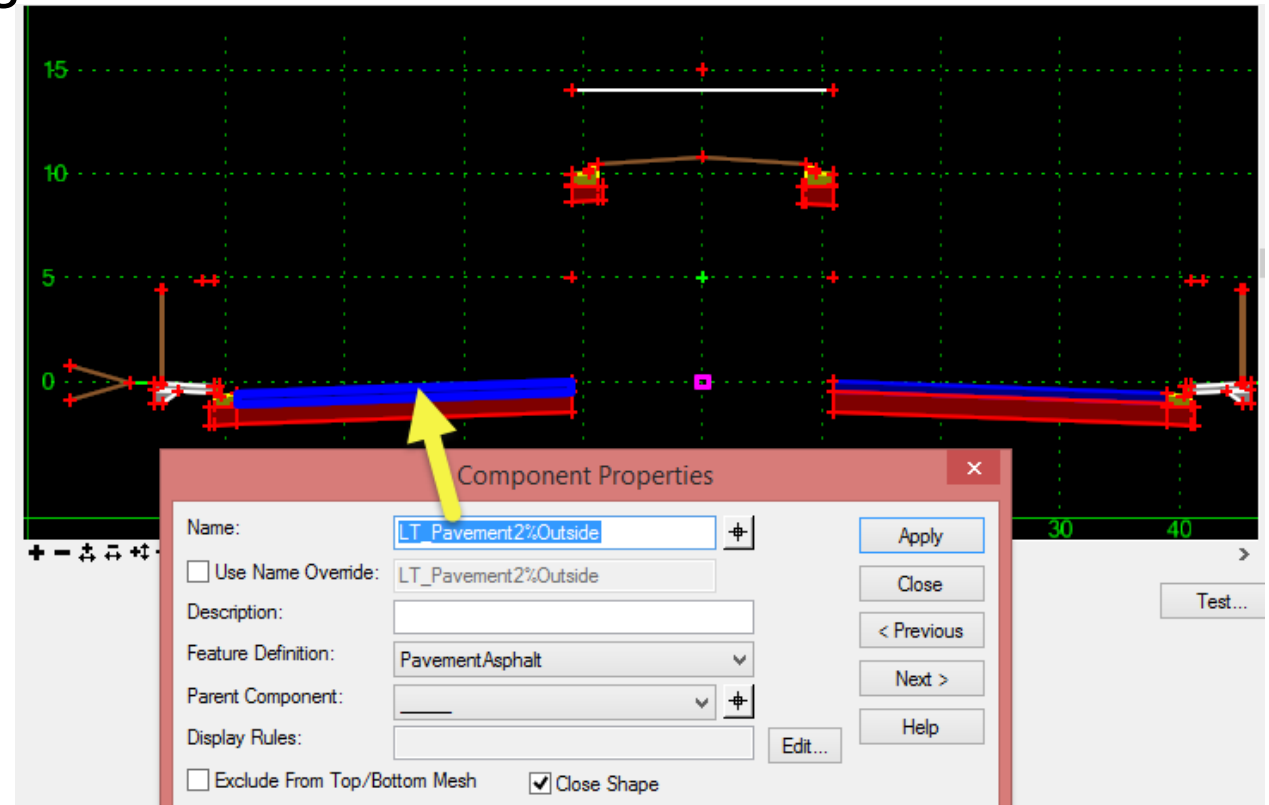
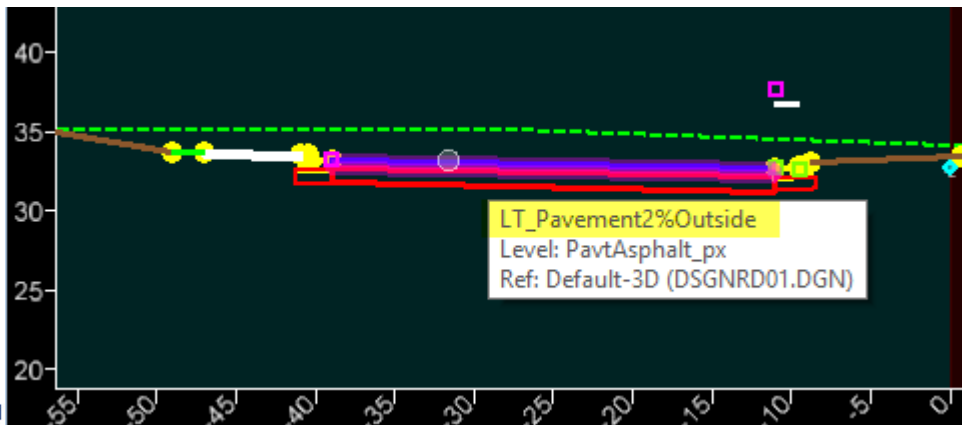
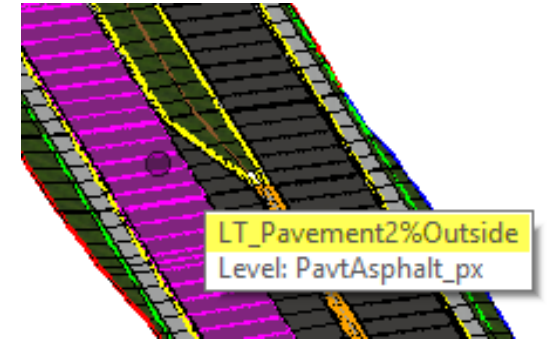
Display Constraints

- ◆ Switching the Display mode from Components to Constraints will provide a graphical representation of the relationships of the points making up the template.



Component Naming

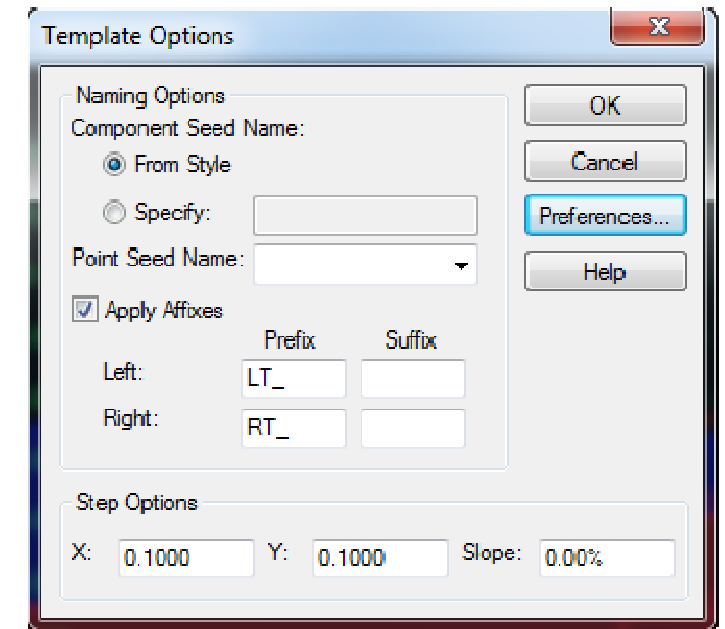
- ◆ Consistency is important
- ◆ Component naming is recommended to be consistent with the material type.
 - ✓ Used for identifying components
 - ✓ Template Transition



Template Options

There are some options you will find helpful when working in the Create Template dialog. To select the FDOT defined Preferences:

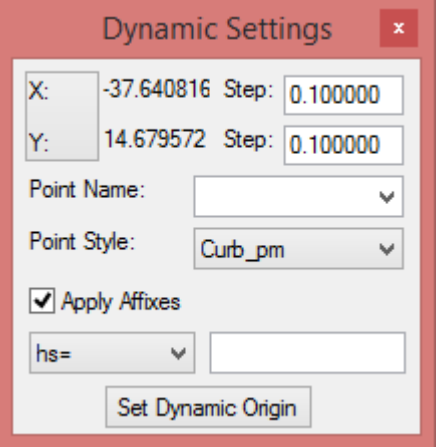
- ◆ Select Tools > Options from the menu in the Create Templates dialog.
- ◆ Click the Preferences Button
- ◆ On the Preferences dialog select FDOT then click Load and OK.
- ◆ Click OK to accept the options and close the dialog.



Dynamic Settings

The Dynamic Settings dialog is used for precision input of the template components and to assign point names and styles when creating components.

- ◆ The Options shown on the previous slide can be accessed and applied as needed using the Dynamic Settings dialog.
- ◆ To Access the Dynamic Settings dialog select Tools > Dynamic Settings.



The screenshot shows the 'Dynamic Settings' dialog box with the following fields and controls:

- X: -37.640816 Step: 0.100000
- Y: 14.679572 Step: 0.100000
- Point Name: (empty dropdown)
- Point Style: Curb_pm (dropdown)
- ☒ Apply Affixes
- hs= (dropdown) (empty text field)
- Set Dynamic Origin button

Construction of Templates

◆ Components - Building Blocks of Templates

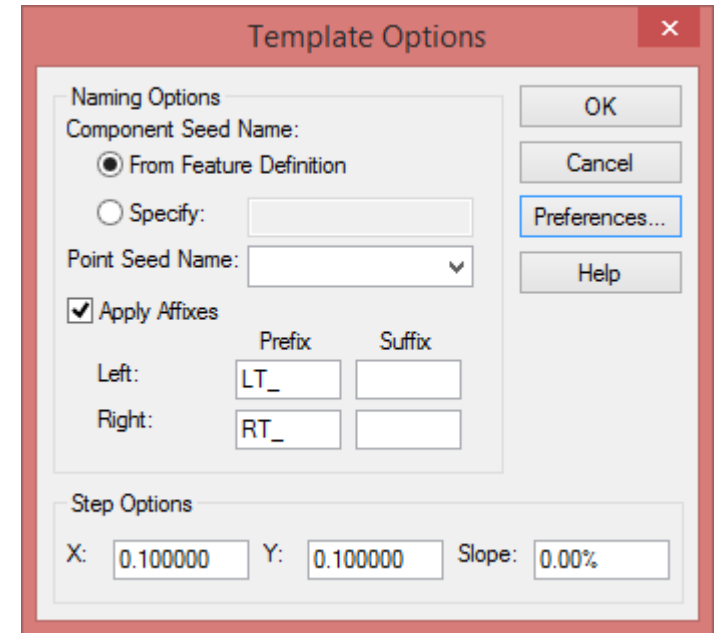
- ✓ Pavement
- ✓ Curbs & Sidewalks
- ✓ Tie Down & End Conditions

◆ Allows Drag & Drop

◆ Mirror/Reflect and Affixes

- ✓ Components
- ✓ Points (Including Overrides)
- ✓ CDR's

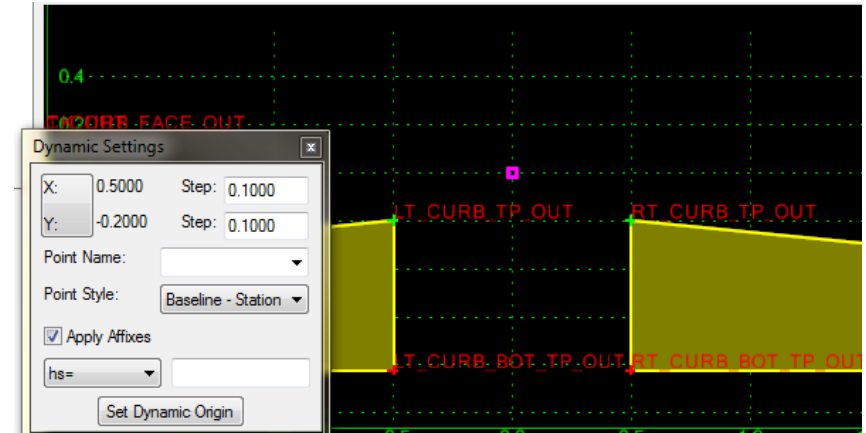
◆ Allows for One Component



The 'Template Options' dialog box is shown with the following settings:

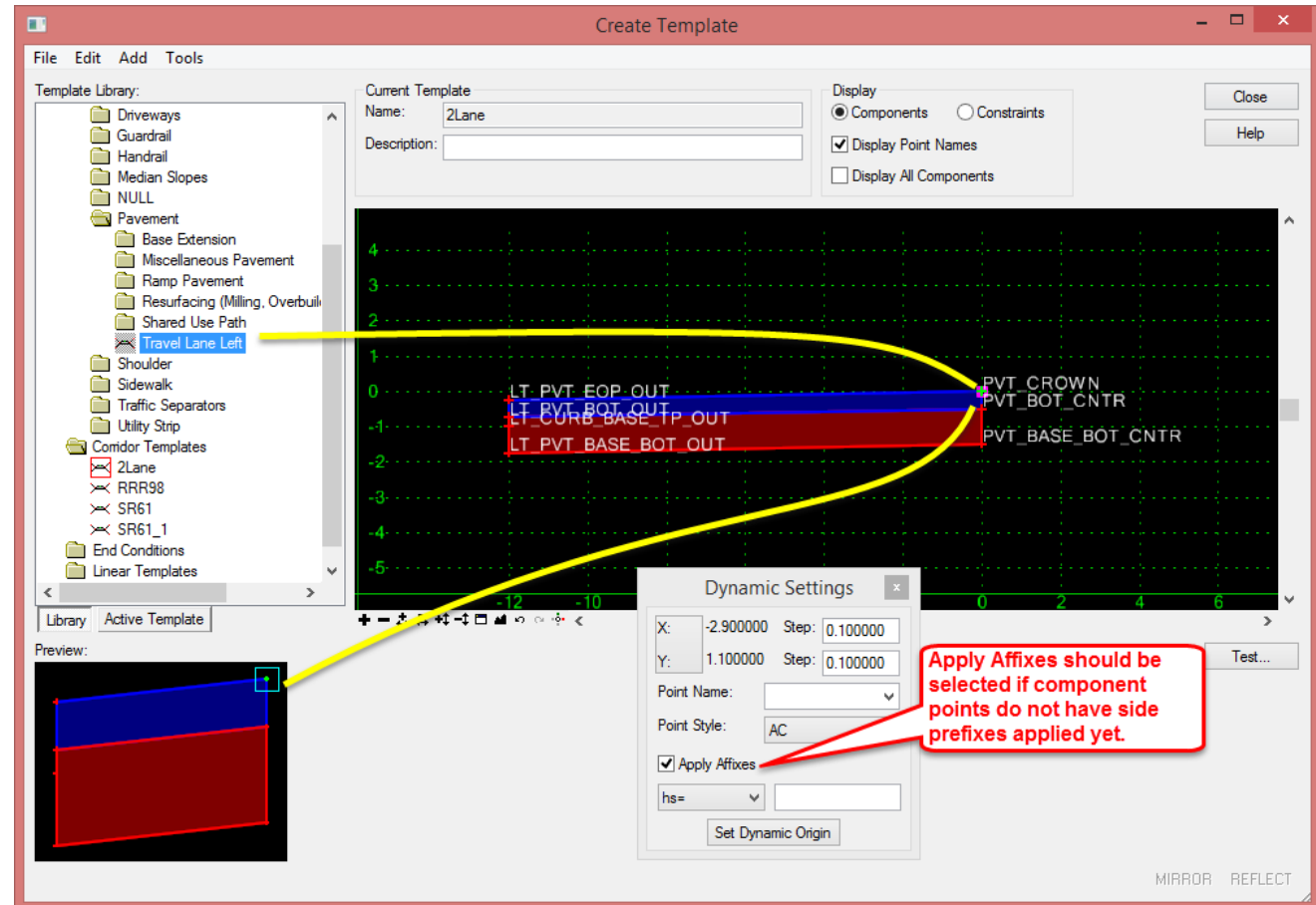
- Naming Options:**
 - ☒ From Feature Definition
 - ☐ Specify: [Empty Text Box]
 - Point Seed Name: [Dropdown Menu]
 - ☒ Apply Affixes
 - Left: Prefix [LT_] Suffix [Empty]
 - Right: Prefix [RT_] Suffix [Empty]
- Step Options:**
 - X: [0.100000] Y: [0.100000] Slope: [0.00%]

Buttons: OK, Cancel, Preferences..., Help



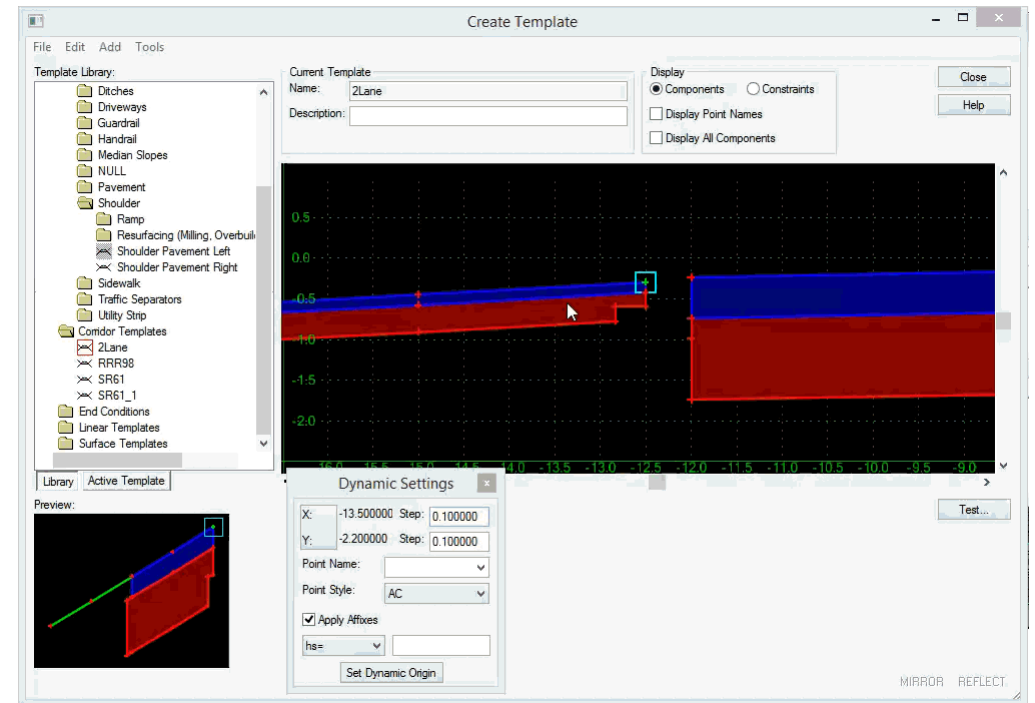
Building a Template from Components

- ◆ Drag components from Template Library folders or the Preview Window into the editing window.



Merging Points

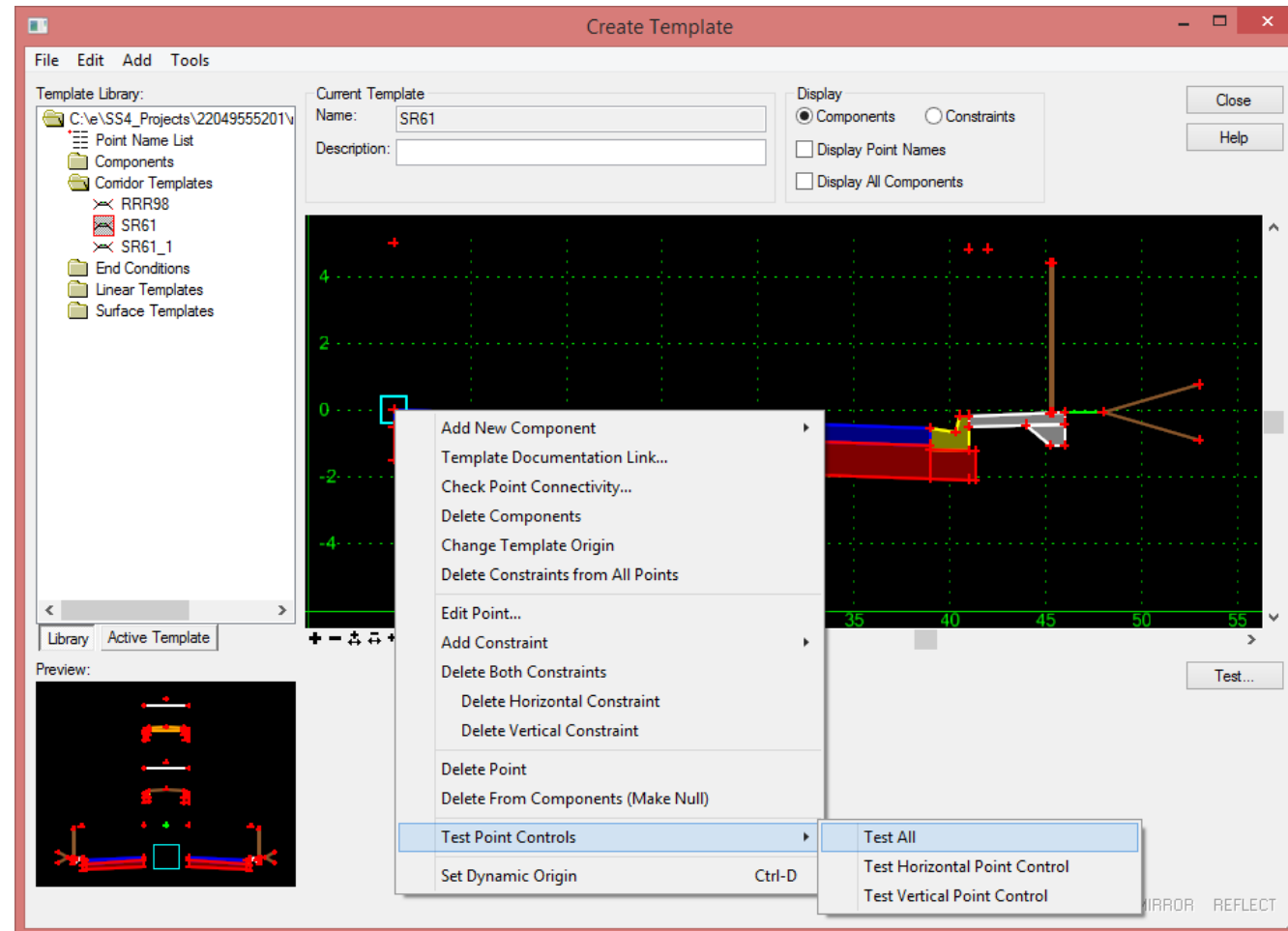
- ◆ Points will be merged automatically if a new component is attached directly to an existing component.
- ◆ Points will be merged automatically if a new component is attached directly to an existing component.
- ◆ If an existing component is moved onto another existing component the points will not be merged automatically.
 - ✓ Manually merged by Right-clicking on the points and selecting **Merge Points** from the context menu.



TIP: If the point remains green, you deleted the wrong one.

Testing Components

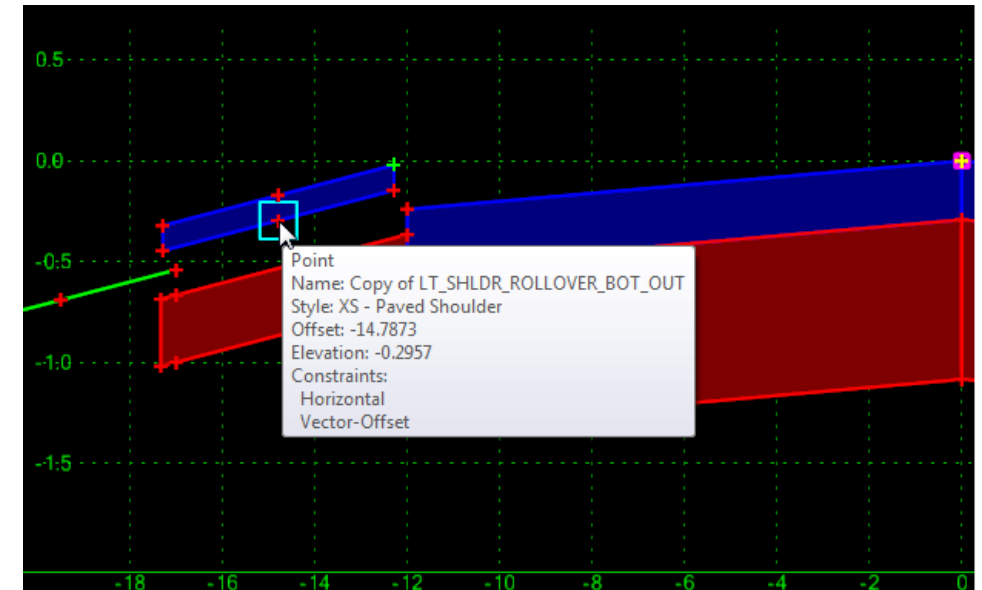
- ◆ You can test constraints in components by moving points to see results.



Inserting Components

To insert a component between other components in a template you will need to Unmerge the components.

- ✓ Right-click on the component and select Unmerge Component points.
- ✓ Points in the component will be renamed, inserting “Copy of” before the name. This breaks other components constraints to the points allowing you to move the component.
- ✓ You can then insert the new component and rename the points of the unmerged components before attaching it to the inserted component(s).
- ✓ Previous constraints and attachments will have to be recreated and points should be merged after moving components into place.



End Conditions

End Conditions are different than simple, constrained, unconstrained, null point, and overlay/stripping components because they have the ability to target surface or elements with specified Features.



End Condition Properties

The Component Properties dialog additional properties when editing .End Conditions.

Target Type - Specifies the type of element the end condition will be searching for.

Priority – When more than one End Condition starts at the same point, this value determines the order in which End Conditions are attempted.

Component Properties

Name: RWP_2-1Cut

☒ Use Name Override: CUT

Description:

Feature Definition: Slopes

Parent Component:

Display Rules:

☐ Exclude From Top/Bottom Mesh

End Condition Properties

Target Type: Terrain Model

Terrain Model: <Active>

Priority: 35

☐ Benching Count: 0

No Datum

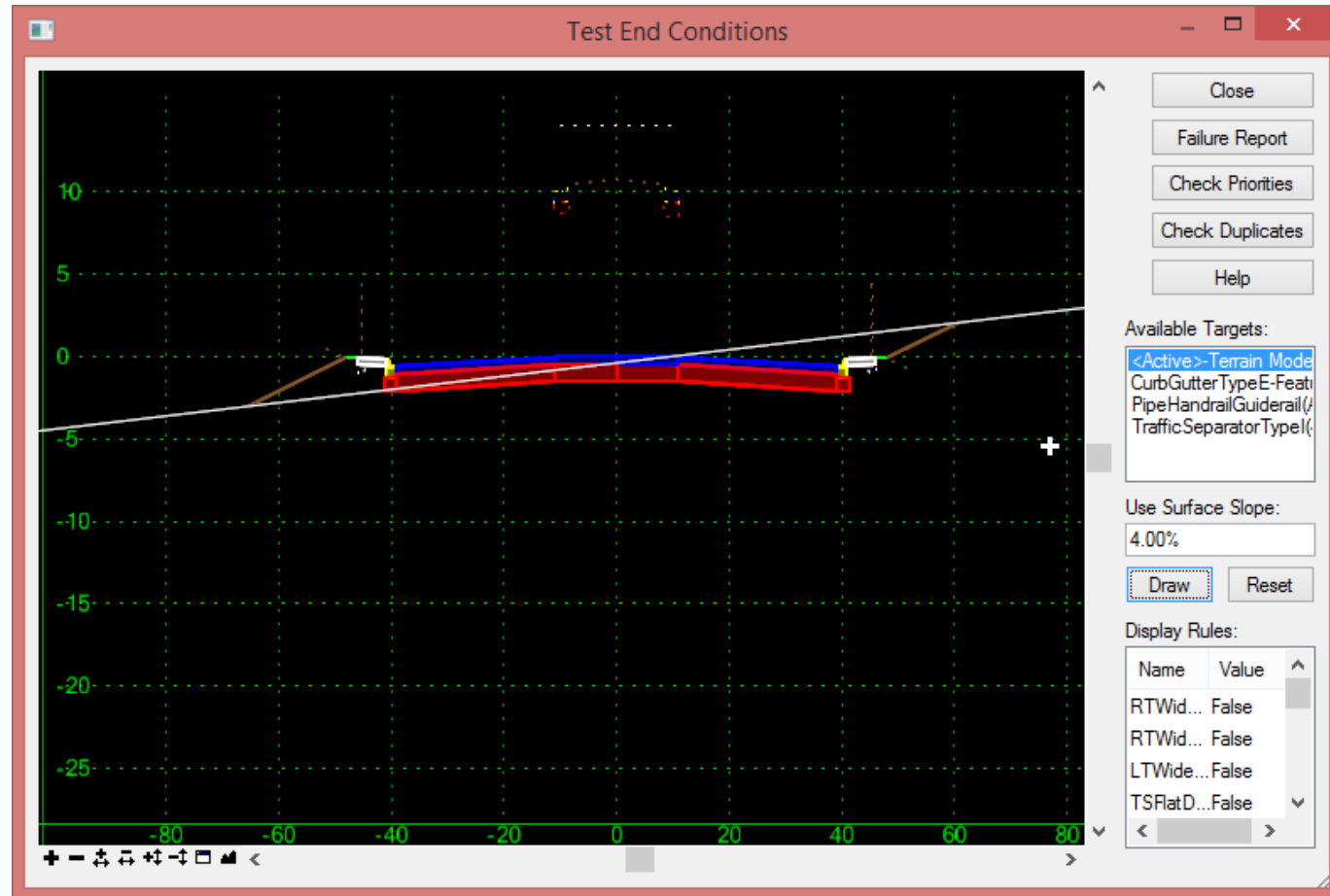
Horizontal Vertical

Offsets: 0.000000 0.000000 Rounding Length 0.000000



Testing End Conditions

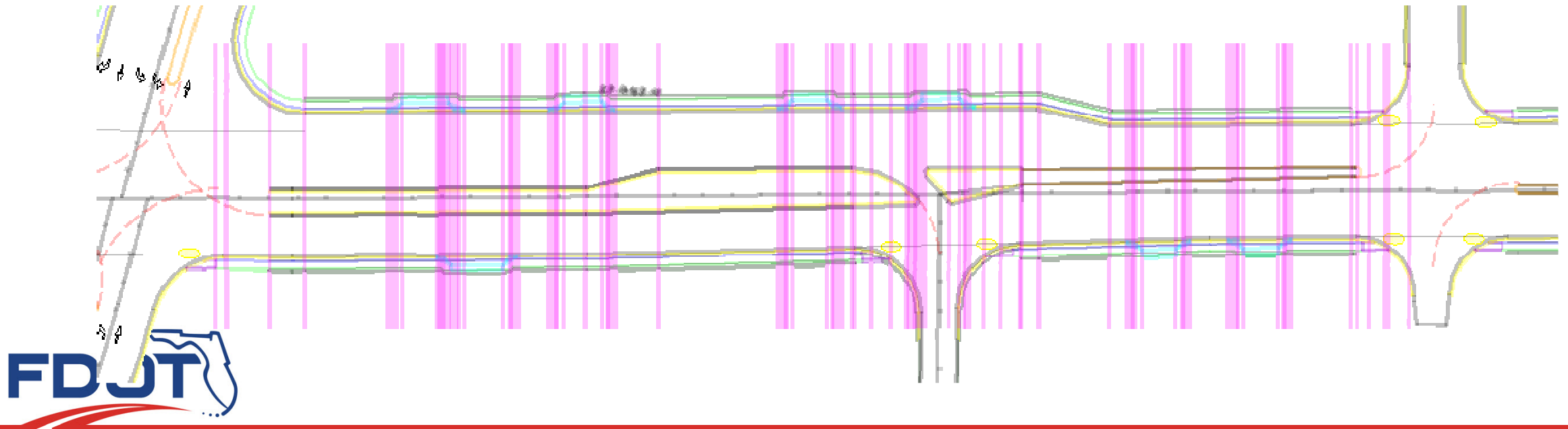
- ◆ End conditions can be tested to see how they react to the surface or other features by clicking the Test button on the Create Template dialog.



Creating Variable Templates

A “Typical” is not typical.

- ◆ Conditions change frequently along a corridor that would represent a change in the model.



Hierarchy of Constraints

A points location can be overridden in various ways to produce variable results from a single template.

- ◆ Point Constraints
- ◆ Horizontal Feature Constraints
- ◆ Parametric Constraints
- ◆ Point Controls
- ◆ Superelevation (specialized point control)



Horizontal Feature Constraint

- ◆ Overrides the point constraints if a Feature or alignment with a matching Feature found within a specified horizontal range.
- ◆ Only elements added as “External References”
- ◆ **Range** specifies the maximum horizontal distance to search from the point's current location
 - ✓ Negative values will search left.
 - ✓ Positive values to the right.
 - ✓ A value of zero causes the search to find the closest instance of the Feature.

The screenshot shows the 'Point Properties' dialog box. The 'Name' field is set to 'LT_PVT_EOP_IN'. The 'Feature Definition' is 'PavementAsphalt_pm'. The 'Alternate Surface' is empty. The 'Member of' list contains 'LT_PvtOverlay_02' and 'LT_ShldrOverlay_In'. The 'Constraints' section has two columns: 'Constraint 1' and 'Constraint 2'. 'Constraint 1' has 'Type' set to 'Horizontal', 'Parent 1' set to 'LT_ML_IN_END_SEARC', and 'Value' set to '0.000000'. 'Constraint 2' has 'Type' set to 'Slope', 'Parent 2' set to 'LT_PVT_OLAY_OUT', and 'Value' set to '2.00%'. At the bottom, the 'Horizontal Feature Constraint' checkbox is checked, with the feature set to 'PavementMilling(ML)' and the 'Range' set to '30.000000'. A red box highlights the bottom section of the dialog.

Constraints	
Constraint 1	Constraint 2
Type: Horizontal	Type: Slope
Parent 1: LT_ML_IN_END_SEARC	Parent 2: LT_PVT_OLAY_OUT
Value: 0.000000	Value: 2.00%
Label:	Label:
<input checked="" type="checkbox"/> Horizontal Feature Constraint: PavementMilling(ML)	
Range: 30.000000	

Horizontal Feature Constraint

- ◆ Horizontal Feature Constraints can be used to override the point constraints so a point on the template can follow an element with the selected Feature.
 - ✓ In this example the horizontal constraint (Constraint 1) defines the width of the pavement but with the Horizontal Feature Constraint defined it will follow the EOP line as it transitions.
- ◆ The Range defines the distance from the “Parent” point it will search for a line with the Feature “PavementAsphalt(EOPA)”. If found the constraints will be overridden to that elements horizontal offset.

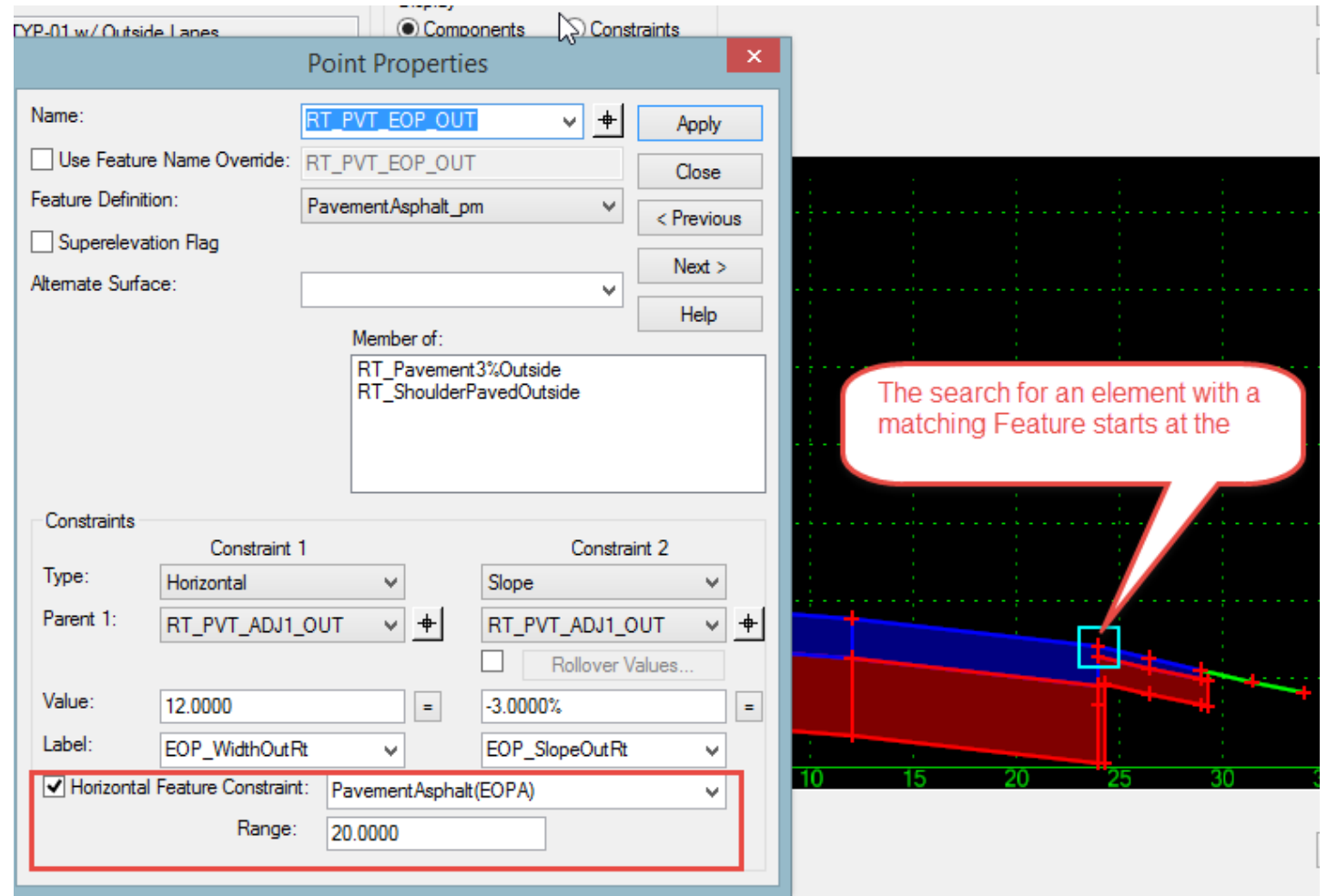
The screenshot shows the 'Point Properties' dialog box with the following settings:

- Name: RT_PVT_EOP_OUT
- Use Feature Name Override: ☐ (unchecked)
- Feature Definition: PavementAsphalt_pm
- Superelevation Flag: ☐ (unchecked)
- Alternate Surface: (empty)
- Member of: RT_Pavement3%Outside, RT_ShoulderPavedOutside
- Constraints section:
 - Constraint 1: Type: Horizontal, Parent 1: RT_PVT_ADJ1_OUT, Value: 12.0000, Label: EOP_WidthOutRt
 - Constraint 2: Type: Slope, Parent 1: RT_PVT_ADJ1_OUT, Value: -3.0000%, Label: EOP_SlopeOutRt
 - ☒ Horizontal Feature Constraint: PavementAsphalt(EOPA), Range: 20.0000

Horizontal Feature Constraints

Horizontal Feature Constraints begin from where the point is defined in the template.

In this example, if the “PavementAsphalt(EOPA)” line varied inside of 12’ or outside of 22’, a 12’ lane will be drawn because the Horizontal Feature Constraints conditions were not met.



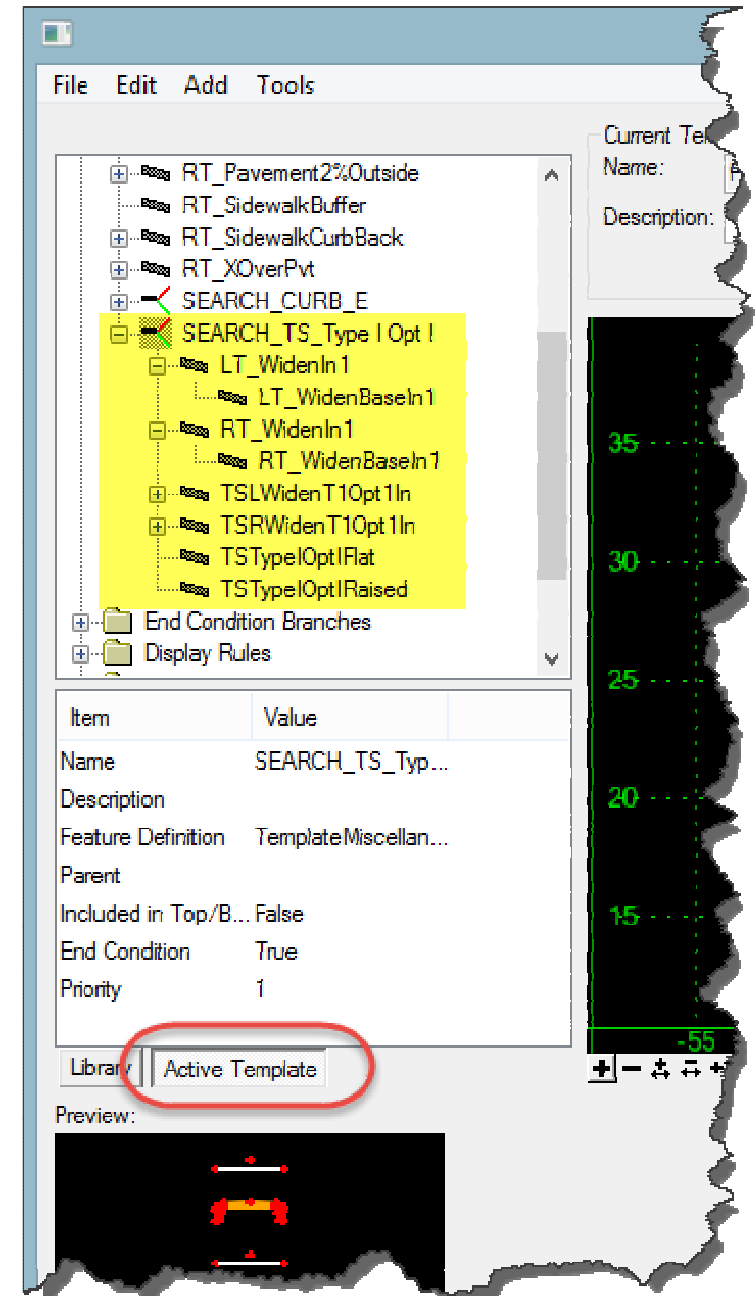
Horizontal Feature Constraint – Range Example



Parent \ Child Relationships

Defining a Parent\Child relationship between related components makes it much easier to manage their display in variable conditions.

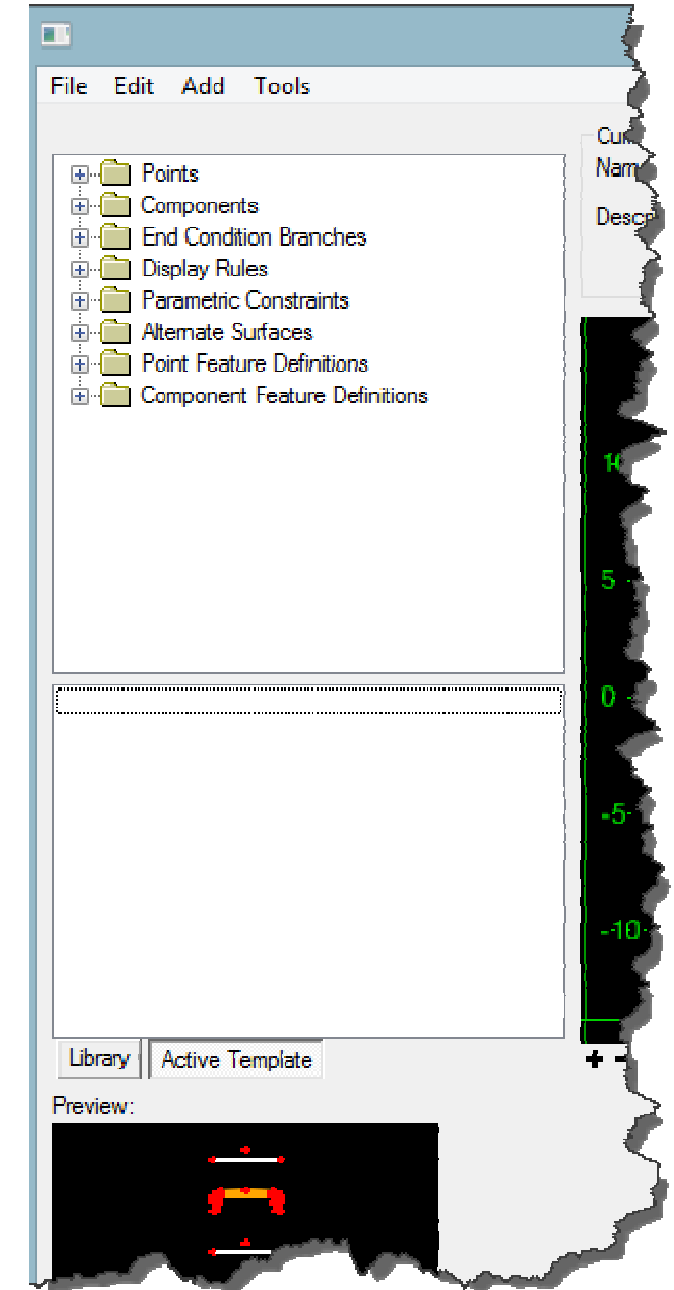
- ◆ End Conditions, Switches, and Display Rules applied to the parent are applied to the children.
- ◆ Deleting a parent component deletes all children.
- ◆ Component Relationships can be viewed as a hierarchical tree using the Active Template tab on the Create Template dialog.
 - ✓ Relationships can be created by dragging and dropping on the Active Template tab.



Active Template View

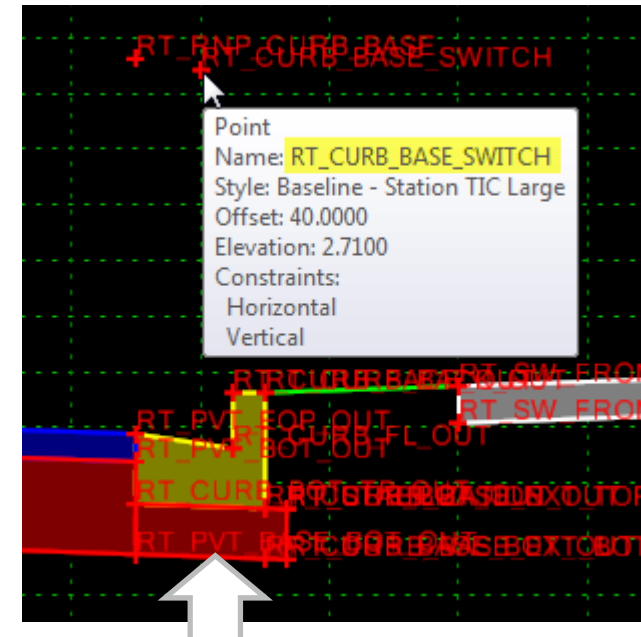
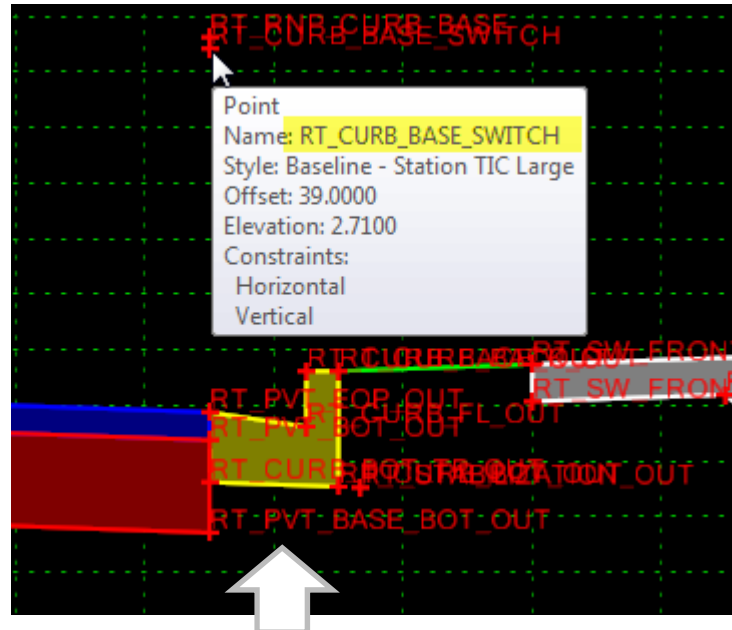
The Active Template view allows you to see and modify properties for all parts of the active template.

- ◆ Points - List of all points. Highlights the selected point in the template.
- ◆ Components – List of Components in hierarchical tree.
- ◆ End Condition Branches – List of end conditions in hierarchical tree.
- ◆ Display Rules – List of all Display Rules . Highlights the selected Display Rules in the template.
- ◆ Parametric Constraints – List of all Labels defined in the active template.
- ◆ Alternate Surfaces – List of all Alternate Surfaces and their components.
- ◆ Point Feature Definitions – List of Points categorized by Feature.
- ◆ Component Feature Definitions - List of Components categorized by Feature.



Switches

If a component or template has a point with the word '**SWITCH**' in the point name, then the '**SWITCH**' Points Horizontal value can be modified to change the components that are displayed.



Switches

“Switch” is a term for using the horizontal distance between two points to switch from one condition to another.

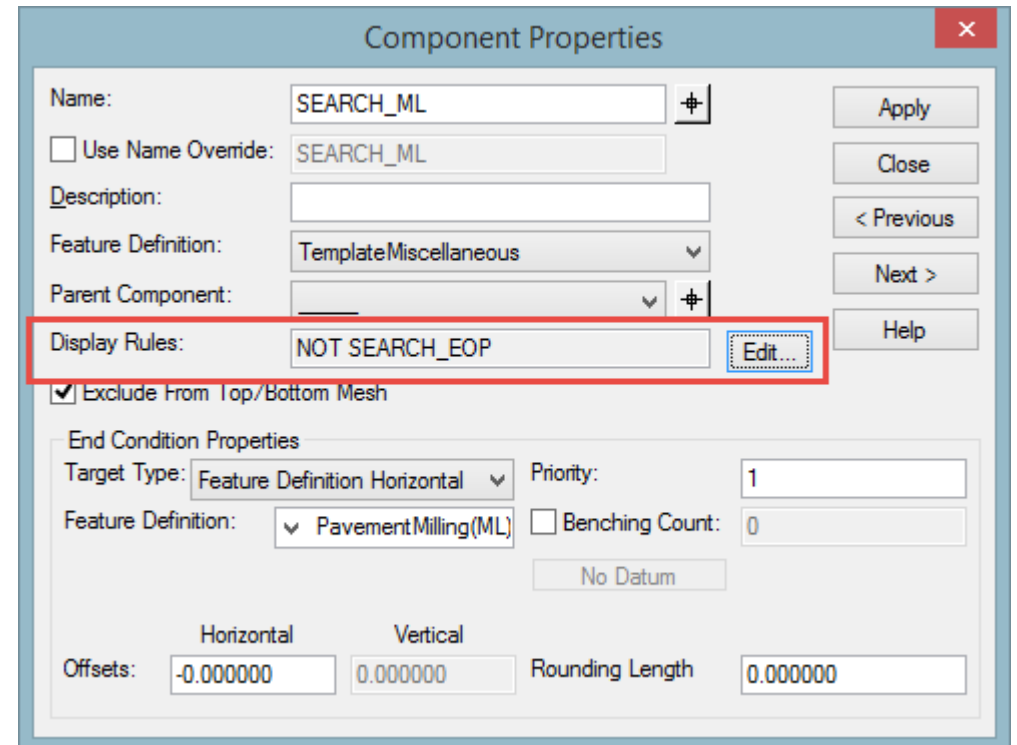
- ✓ If the distance between LT_Switch and LT_Switch1 is 1' display a Type F Curb and Gutter
 - ✓ If the distance between LT_Switch and LT_Switch1 is 2' display a Type E Curb and Gutter
 - ✓ If the distance between LT_Switch and LT_Switch1 is 3' display a Drop Curb
-
- ◆ Display Rules are applied to each of the possible conditions so as the distance changes one condition is turned off and another is turned on.

Name	Type	Expression	Test	Value	Result
LT_SWITCH1	Horizontal	LT_SWITCH1 - LT_SWITCH	=	1.000000	False
LT_SWITCH2	Horizontal	LT_SWITCH1 - LT_SWITCH	=	2.000000	True
LT_SWITCH3	Horizontal	LT_SWITCH1 - LT_SWITCH	=	3.000000	False
LT_SWITCH4	Horizontal	LT_SWITCH1 - LT_SWITCH	=	4.000000	False
LT_SWITCH5	Horizontal	LT_SWITCH1 - LT_SWITCH	=	5.000000	False
RT_SWITCH...	Horizontal	RT_SWITCH1 - RT_SWITCH	=	1.000000	False
RT_SWITCH...	Horizontal	RT_SWITCH1 - RT_SWITCH	=	2.000000	False
RT_SWITCH...	Horizontal	RT_SWITCH1 - RT_SWITCH	=	3.000000	False
RT_SWITCH...	Horizontal	RT_SWITCH1 - RT_SWITCH	=	4.000000	False
RT_SWITCH...	Horizontal	RT_SWITCH1 - RT_SWITCH	=	5.000000	False



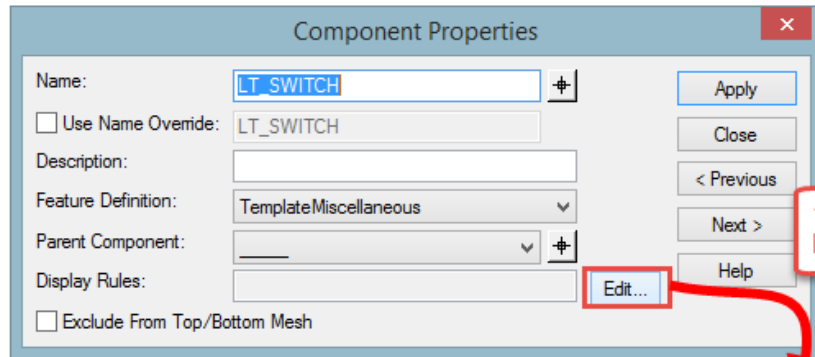
Display Rules

- ◆ A Display Rule is a condition statement that can be assigned to a component. Once assigned the component can only be displayed when the conditional statement is true.
 - ✓ Evaluated at each interval
 - ✓ Affects the component and all children



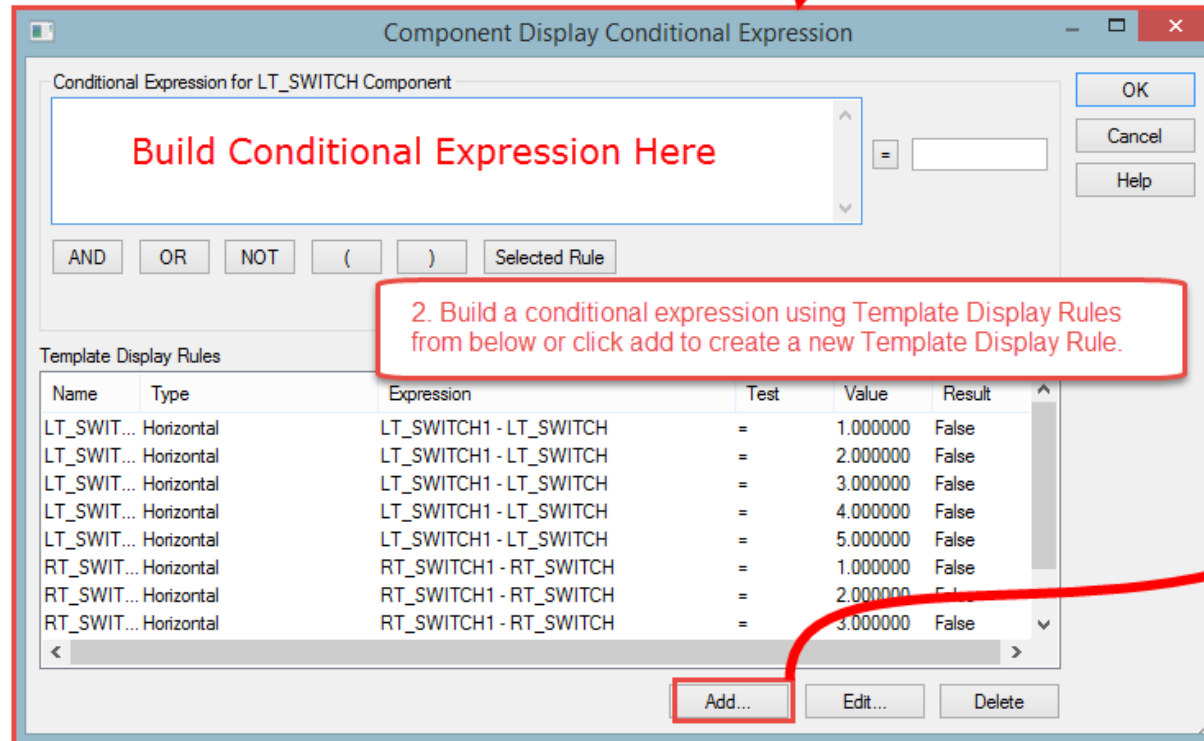
The screenshot shows the 'Component Properties' dialog box. The 'Display Rules' field is highlighted with a red rectangle and contains the text 'NOT SEARCH_EOP'. An 'Edit...' button is located to the right of this field. Other fields in the dialog include 'Name' (SEARCH_ML), 'Use Name Override' (SEARCH_ML), 'Description', 'Feature Definition' (TemplateMiscellaneous), 'Parent Component', 'Exclude From Top/Bottom Mesh' (checked), 'End Condition Properties' (Target Type: Feature Definition Horizontal, Priority: 1), 'Feature Definition' (PavementMilling(ML)), 'Benching Count' (0), 'Offsets' (Horizontal: -0.000000, Vertical: 0.000000), and 'Rounding Length' (0.000000). Buttons for 'Apply', 'Close', '< Previous', 'Next >', and 'Help' are also visible.

Creating Display Rules



Component Properties dialog box. Fields include Name (LT_SWITCH), Use Name Override (LT_SWITCH), Description, Feature Definition (TemplateMiscellaneous), Parent Component, Display Rules, and Exclude From Top/Bottom Mesh. Buttons include Apply, Close, < Previous, Next >, Help, and Edit... (highlighted with a red box and arrow).

1. Click Edit to add a Display Rule

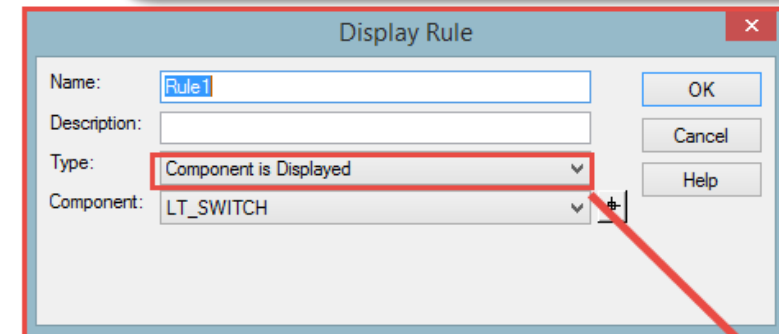


Component Display Conditional Expression dialog box. It contains a text area for the conditional expression, logical operators (AND, OR, NOT, (,)), and a list of Template Display Rules. The 'Add...' button is highlighted with a red box and arrow.

Name	Type	Expression	Test	Value	Result
LT_SWIT...	Horizontal	LT_SWITCH1 - LT_SWITCH	=	1.000000	False
LT_SWIT...	Horizontal	LT_SWITCH1 - LT_SWITCH	=	2.000000	False
LT_SWIT...	Horizontal	LT_SWITCH1 - LT_SWITCH	=	3.000000	False
LT_SWIT...	Horizontal	LT_SWITCH1 - LT_SWITCH	=	4.000000	False
LT_SWIT...	Horizontal	LT_SWITCH1 - LT_SWITCH	=	5.000000	False
RT_SWIT...	Horizontal	RT_SWITCH1 - RT_SWITCH	=	1.000000	False
RT_SWIT...	Horizontal	RT_SWITCH1 - RT_SWITCH	=	2.000000	False
RT_SWIT...	Horizontal	RT_SWITCH1 - RT_SWITCH	=	3.000000	False

2. Build a conditional expression using Template Display Rules from below or click add to create a new Template Display Rule.

3. Enter a Name for the Display Rule and choose the type of rule from the "Type" drop-down. Each type will require additional properties be defined once selected.



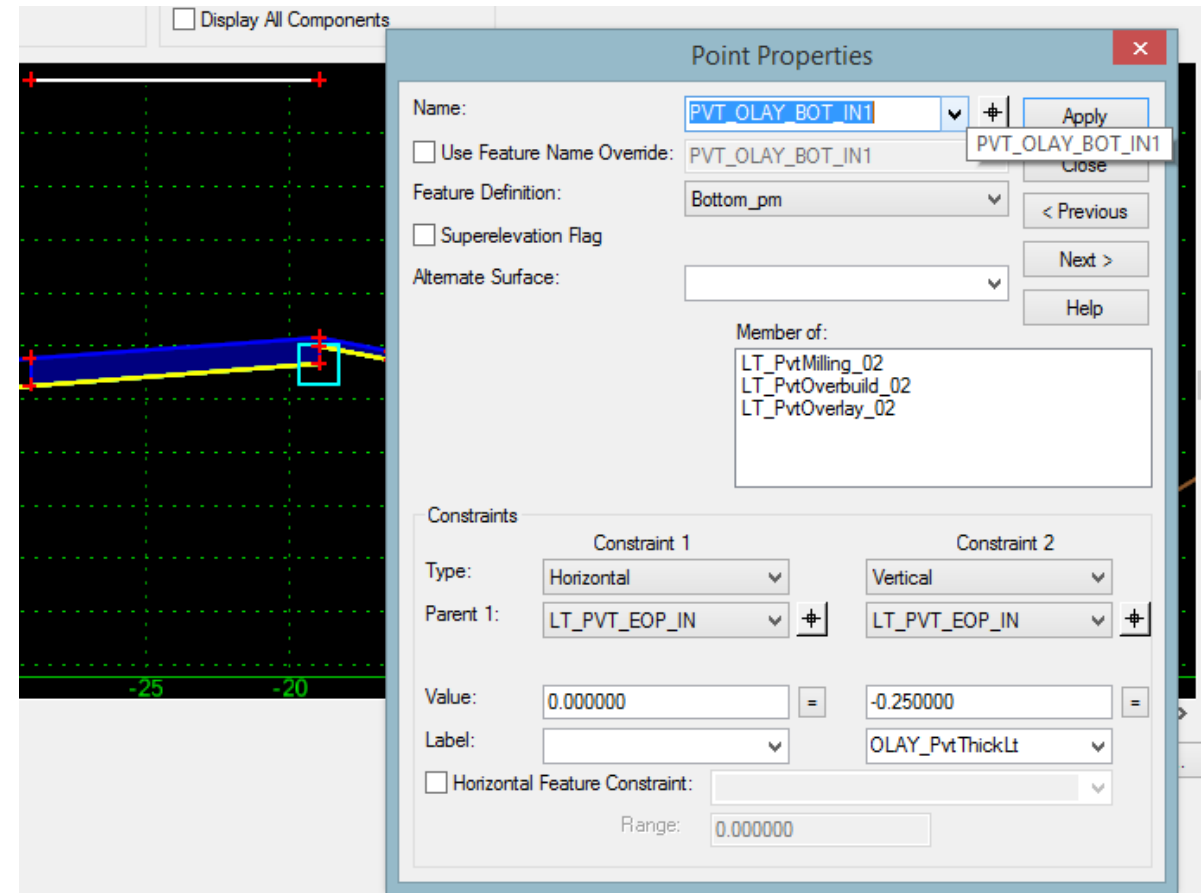
Display Rule dialog box. Fields include Name (Rule1), Description, Type (Component is Displayed), and Component (LT_SWITCH). Buttons include OK, Cancel, and Help.

Horizontal
Absolute Horizontal
Vertical
Absolute Vertical
Slope
Absolute Slope
Component is Displayed

Defining Parametric Constraints (Labels)

Parametric Constraints use the Label property defined on a points constraints to override the defined value over a specified station range.

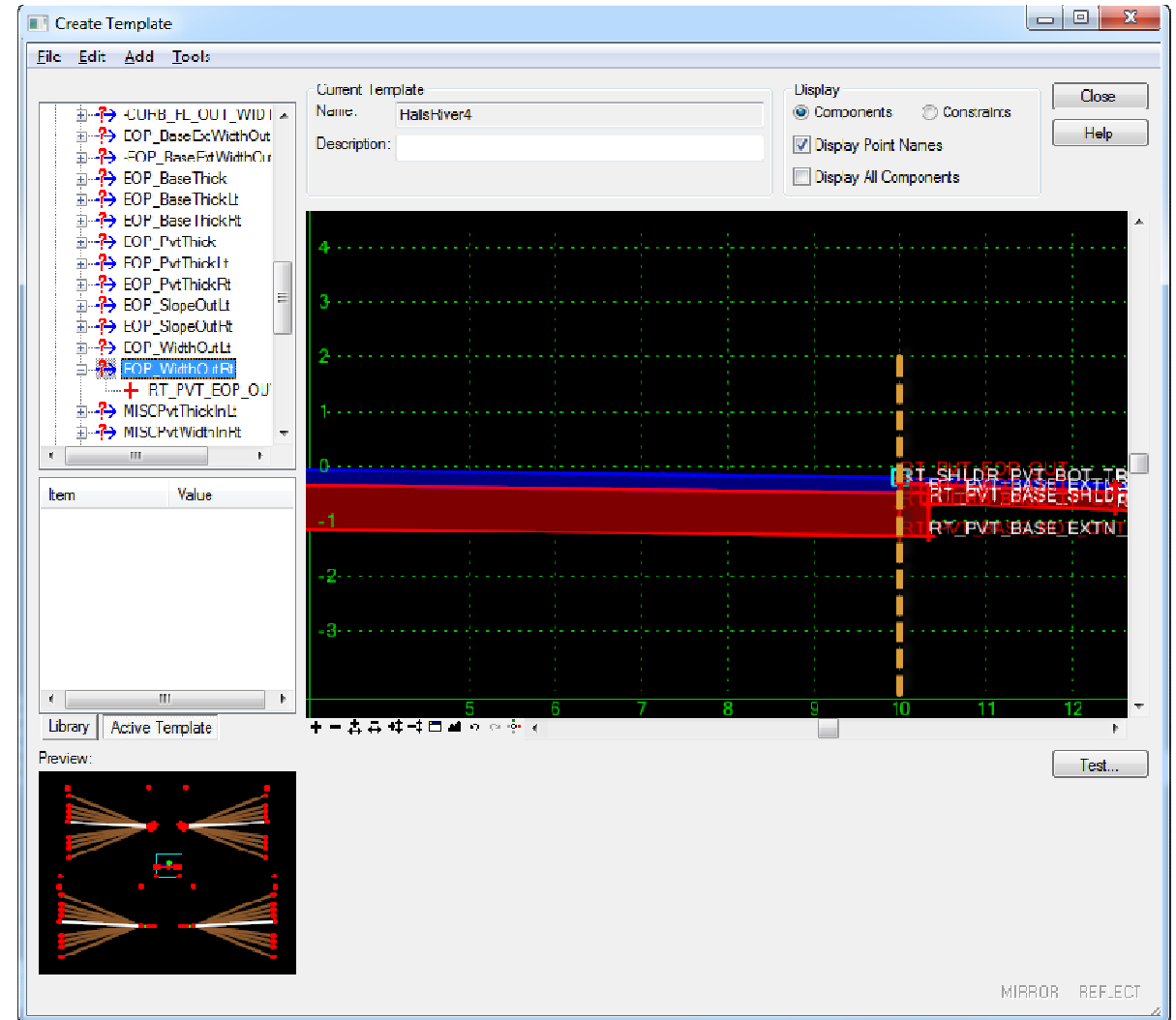
- ◆ Labels for common constraints should be the same.
 - ✓ Pavement Depth
 - ✓ Lane Width
 - ✓ Switches



Parametric Constraints

To edit Parametric Constraints on the Create Template dialog:

1. Select the “Active Template” tab.
2. Expand the Parametric Constraints folder
3. Double-click the Label name
4. Enter a value in the “Edit Default Parametric Value” dialog
5. Click OK.

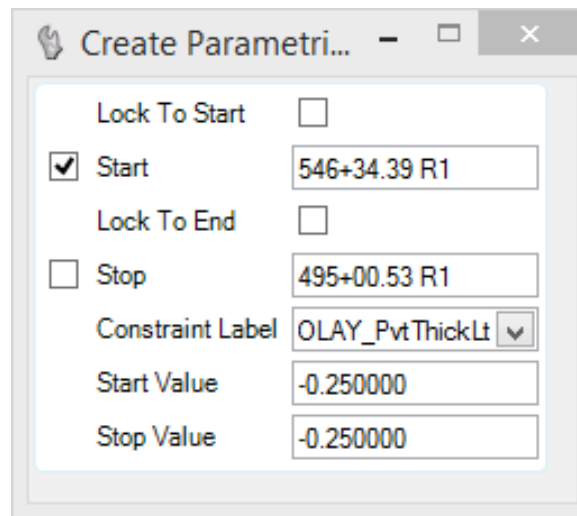


Applying Parametric Constraints

To apply a parametric Constraint to a corridor select “Civil Tools > Corridor Modeling > Create Parametric Constraint from the Task Menu.

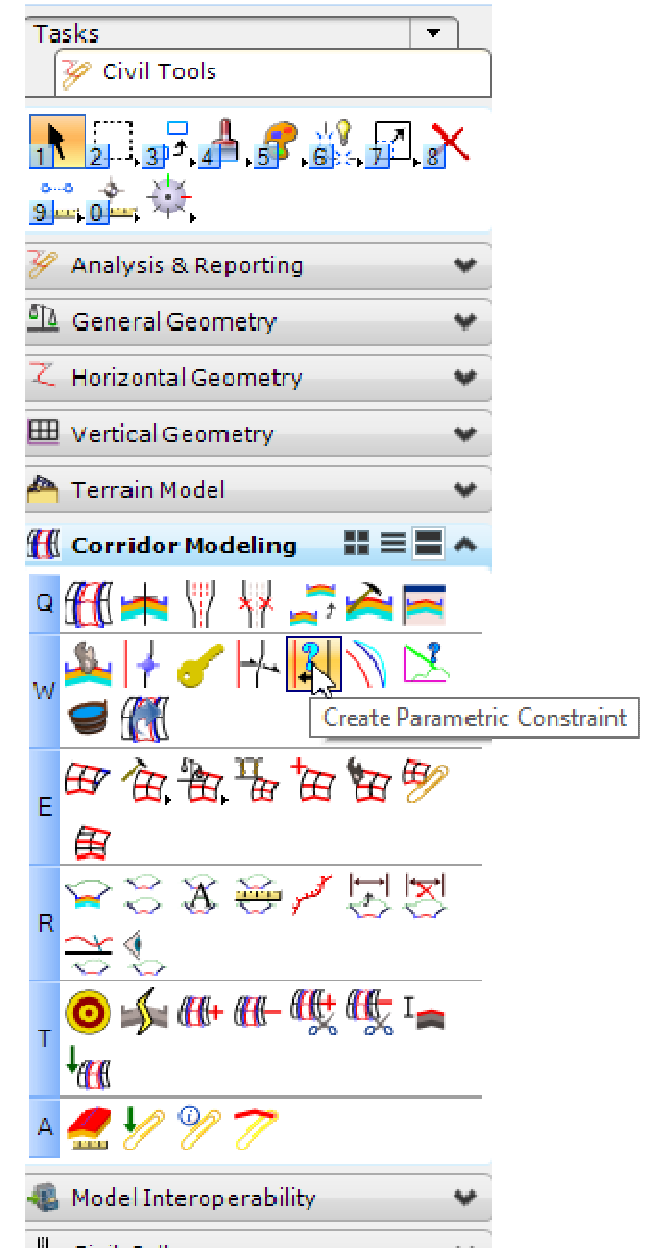
◆ After selecting the corridor you will be prompted for :

- ✓ Start station
- ✓ Stop station
- ✓ Constraint Label
- ✓ Start Value
- ✓ End Value



The dialog box titled 'Create Parametric...' contains the following fields:

Lock To Start	<input type="checkbox"/>
<input checked="" type="checkbox"/> Start	546+34.39 R1
Lock To End	<input type="checkbox"/>
<input type="checkbox"/> Stop	495+00.53 R1
Constraint Label	OLAY_PvtThickLt
Start Value	-0.250000
Stop Value	-0.250000

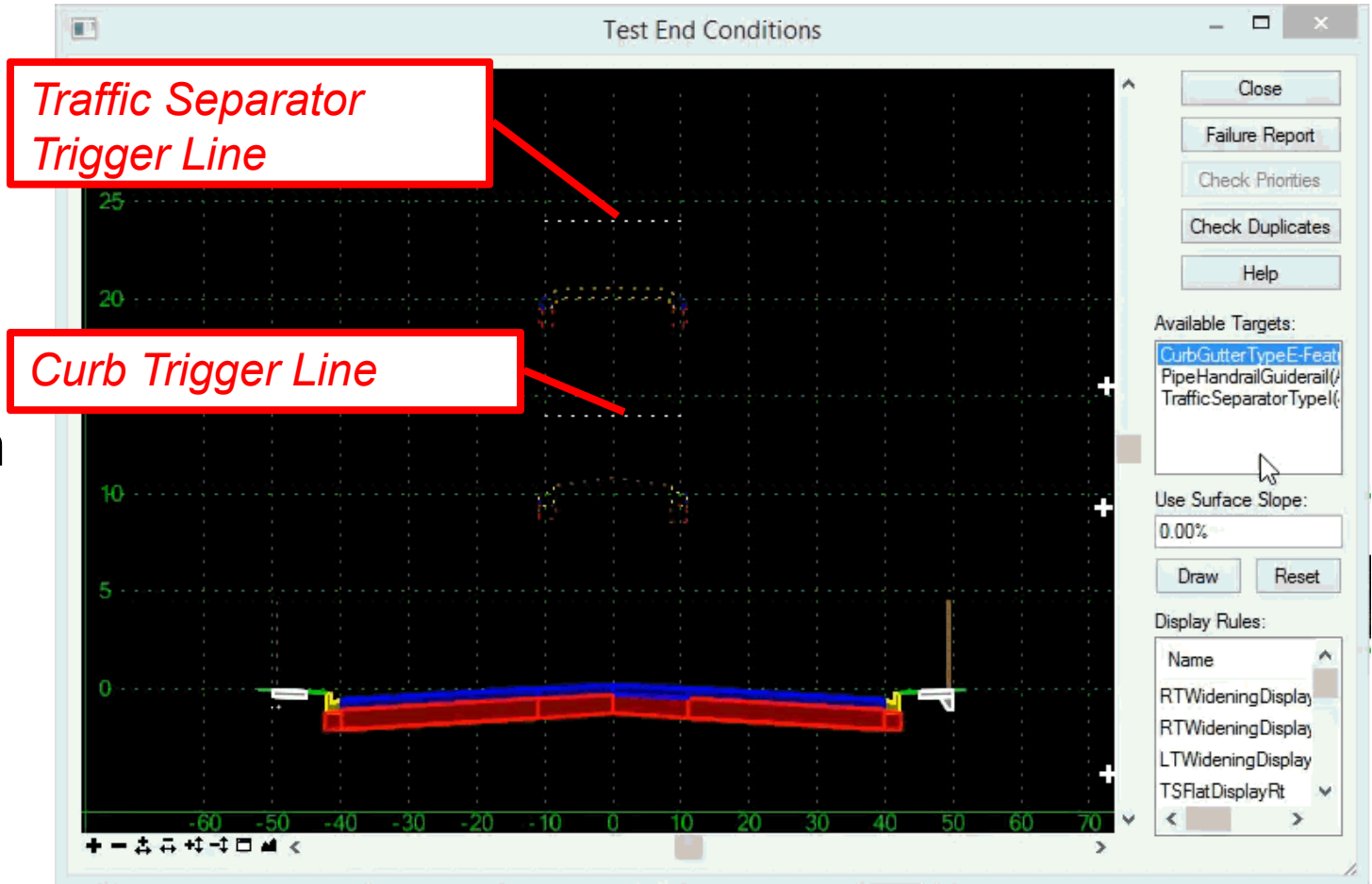


Trigger Lines

“Trigger Line” is a term for the use of End Conditions as display controls.

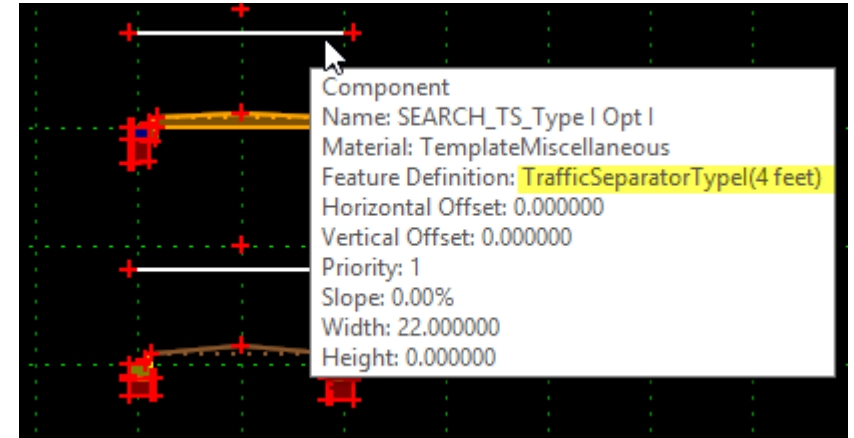
Trigger Lines are used to make a template dynamic by including multiple possibilities in a single template.

- ✓ Reduces the number of template drops required along a corridor.
- ✓ Especially useful in urban areas where conditions change frequently.



Creating Trigger Lines

- ◆ An End Condition (Trigger Line) is configured to search for a specific target.
- ◆ Make Trigger Line the Parent of related components.
- ◆ All related components of that Trigger Line will be displayed when the Target is located and they will not be displayed when the Target is not found.
- ◆ Exclude Trigger Lines from triangulation.



Component Properties

Name:

☐ Use Name Override:

Description:

Feature Definition:

Parent Component:

Display Rules:

☒ Exclude From Top/Bottom Mesh

End Condition Properties

Target Type:

Feature Definition:

Priority:

☐ Benching Count:

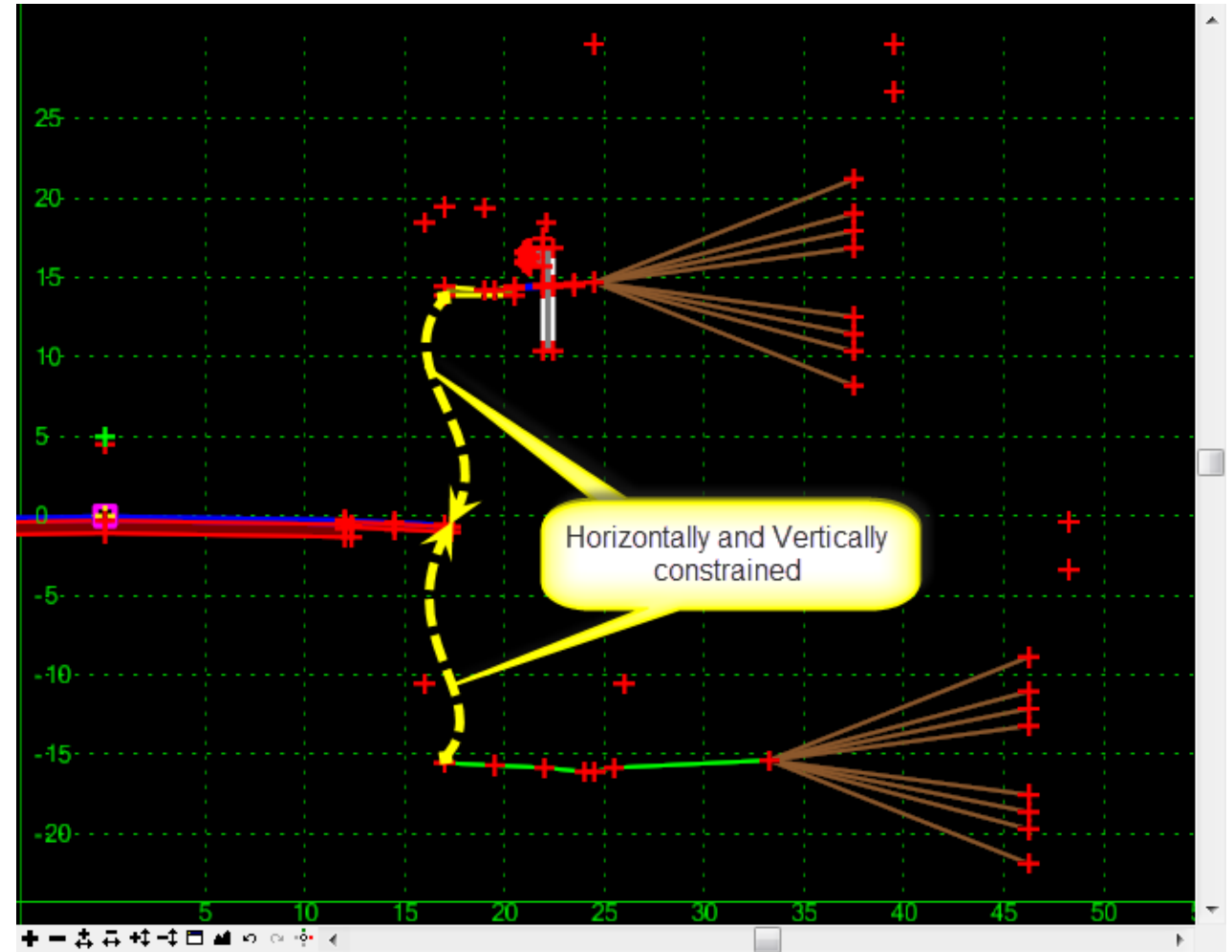
No Datum

Horizontal Vertical

Offsets: Rounding Length

Organizing \ Stacking Conditions

- ◆ Instead of stacking all of the end conditions on top of each other they can be offset.
- ◆ All end conditions can be attached using Horizontal and Vertical constraints
- ◆ Parametric Constraints can be used to override the Horizontal and Vertical constraints to zero values when applied to the corridor.



Best Practices

1. Create a project template library in the project folder
2. Use TLO to copy FDOT templates
3. Organize templates by corridor
4. Version the templates or organize by template drop stations
5. Use Apply Affixes when building new templates (tools options)
6. One green point per template (as a rule)
7. Remove point name overrides (All white text), except on common tie down points
8. Remove component name overrides except on common tie down components
9. Use the same label on common constraints
10. Create a good Parent/Child relationship Organized in Active Template



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